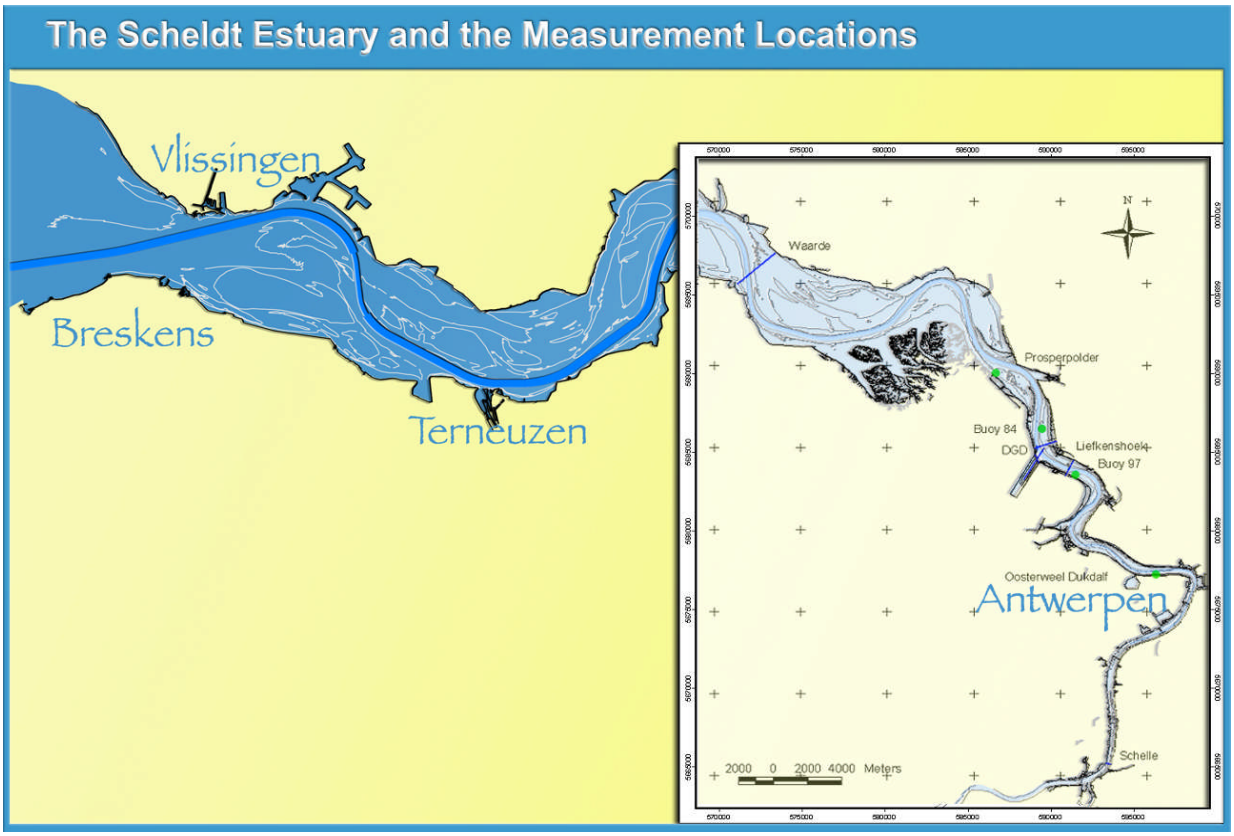
VLAAMSE OVERHEID
DEPARTEMENT MOBILITEIT EN OPENBARE WERKEN

WATERBOUWKUNDIG LABORATORIUM

Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing

Bestek 16EB/05/04



Deelrapport 3.1 : Omgevingscondities in de rivier de Schelde januari – maart 2007

Report 3.1 : Overview of boundary conditions in the river Scheldt January – March 2007

22 October 2007

I/RA/11283/06.127/MSA

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1. INTRODUCTION

1.1. The assignment

This report is part of the set of reports describing the results of the long-term measurements conducted in Deurganckdok aiming at the monitoring and analysis of silt accretion. This measurement campaign is an extension of the study "Extension of the study about density currents in the Beneden Zeeschelde" as part of the Long Term Vision for the Scheldt estuary. It is complementary to the study 'Field measurements high-concentration benthic suspensions (HCBS 2)'.

The terms of reference for this study were prepared by the 'Departement Mobiliteit en Openbare Werken van de Vlaamse Overheid, Afdeling Waterbouwkundig Laboratorium' (16EB/05/04). The study was awarded to International Marine and Dredging Consultants NV in association with WL|Delft Hydraulics and Gems International on 10/01/2006.

Waterbouwkundig Laboratorium– Cel Hydrometrie Schelde provided data on discharge, tide, salinity and turbidity along the river Scheldt and provided survey vessels for the long term and through tide measurements. Afdeling Maritieme Toegang provided maintenance dredging data. Agentschap voor Maritieme Dienstverlening en Kust – Afdeling Kust and Port of Antwerp provided depth sounding measurements.

The execution of the study involves a twofold assignment:

- Part 1: Setting up a sediment balance of Deurganckdok covering a period of one year
- Part 2: An analysis of the parameters contributing to siltation in Deurganckdok

1.2. Purpose of the study

The Lower Sea Scheldt (Beneden Zeeschelde) is the stretch of the Scheldt estuary between the Belgium-Dutch border and Rupelmonde, where the entrance channels to the Antwerp sea locks are located. The navigation channel has a sandy bed, whereas the shallower areas (intertidal areas, mud flats, salt marshes) consist of sandy clay or even pure mud sometimes. This part of the Scheldt is characterized by large horizontal salinity gradients and the presence of a turbidity maximum with depth-averaged concentrations ranging from 50 to 500 mg/l at grain sizes of 60 - 100 μm. The salinity gradients generate significant density currents between the river and the entrance channels to the locks, causing large siltation rates. It is to be expected that in the near future also the Deurganckdok will suffer from such large siltation rates, which may double the amount of dredging material to be dumped in the Lower Sea Scheldt.

Results from the study may be interpreted by comparison with results from the HCBS and HCBS2 studies covering the whole Lower Sea Scheldt. These studies included through-tide measurement campaigns in the vicinity of Deurganckdok and long term measurements of turbidity and salinity in and near Deurganckdok.

The first part of the study focuses on obtaining a sediment balance of Deurganckdok. Aside from natural sedimentation, the sediment balance is influenced by the maintenance and capital dredging works. This involves sediment influx from capital dredging works in the Deurganckdok, and internal relocation and removal of sediment by maintenance dredging works. To compute a sediment balance an inventory of bathymetric data (depth soundings), density measurements of the deposited material and detailed information of capital and maintenance dredging works will be made up.

The second part of the study is to gain insight in the mechanisms causing siltation in Deurganckdok, it is important to follow the evolution of the parameters involved, and this on a long and short term basis (long term & through-tide measurements). Previous research has shown the importance of water exchange at the entrance of Deurganckdok as essential for understanding sediment transport between the dock and the Scheldt river.

1.3. Overview of the study

1.3.1. Reports

Reports of the project 'Opvolging aanslibbing Deurganckdok' are summarized in Table 1-1.

This report, report 3.1, is one of set of reports for understanding the sediment transport between Deurganckdok and the river Scheldt, which belongs to the second part of this project.

The report is also a part of the set of ambient conditions reports of HCBS2 and contains HCBS2 report 5.5, 'Overview of ambient conditions in the river Scheldt: RCM-9 buoys 84 & 97 (01/01/2007 – 31/03/2007) (I/RA/11291/06.090/MSA). This new ambient conditions report gives an overview of the ambient conditions from January till March 2007 in the river Scheldt. An overview of the HCBS2 reports is given in APPENDIX A.

Table 1-1: Overview of Deurganckdok Reports

Report	Description
Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities	
1.1	Sediment Balance: Three monthly report 1/4/2006 – 30/06/2006 (I/RA/11283/06.113/MSA)
1.2	Sediment Balance: Three monthly report 1/7/2006 – 30/09/2006 (I/RA/11283/06.114/MSA)
1.3	Sediment Balance: Three monthly report 1/10/2006 – 31/12/2006 (I/RA/11283/06.115/MSA)
1.4	Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.116/MSA)
1.5	Annual Sediment Balance (I/RA/11283/06.117/MSA)
1.6	Sediment balance Bathymetry: 2005 – 3/2006 (I/RA/11283/06.118/MSA)
Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP)	
2.1	Through tide measurement Siltprofiler 21/03/2006 Laure Marie (I/RA/11283/06.087/WGO)
2.2	Through tide measurement Siltprofiler 26/09/2006 Stream (I/RA/11283/06.068/MSA)
2.3	Through tide measurement Sediview spring tide 22/03/2006 Veremans (I/RA/11283/06.110/BDC)
2.4	Through tide measurement Sediview spring tide 27/09/2006 Parel 2 (I/RA/11283/06.119/MSA)
~~2.5~~	~~Through tide measurement Sediview neap tide (to be scheduled)~~

Report	Description
	~~(I/RA/11283/06.120/MSA)~~[1]
2.6	Salt-Silt distribution & Frame Measurements Deurganckdok 13/3/2006 – 31/05/2006 (I/RA/11283/06.121/MSA)
2.7	Salt-Silt distribution & Frame Measurements Deurganckdok 15/07/2006 – 31/10/2006 (I/RA/11283/06.122/MSA)
2.8	Salt-Silt distribution & Frame Measurements Deurganckdok 12/02/2007 – 18/04/2007 (I/RA/11283/06.123/MSA)
Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels	
3.1	Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA) including HCBS 2 report 5.5
~~3.2~~	~~Boundary condtions: Annual report (I/RA/11283/06.128/MSA)~~[2]
Analysis	
4.1	Analysis of Siltation Processes and Factors (I/RA/11283/06.129/MSA)

1.3.2. Measurement actions

Following measurements have been carried out during the course of this project:

1. Monitoring upstream discharge in the river Scheldt.
2. Monitoring Salt and sediment concentration in the Lower Sea Scheldt taken from on permanent data acquisition sites at Oosterweel, Prosperpolder and up- and downstream of the Deurganckdok.
3. Long term measurement of salt distribution in Deurganckdok.
4. Long term measurement of sediment concentration in Deurganckdok
5. Monitoring near-bed processes in the central trench in the dock, near the entrance as well as near the landward end: near-bed turbidity, near-bed current velocity and bed elevation variations are measured from a fixed frame placed on the dock's bed.
6. Measurement of current, salt and sediment transport at the entrance of Deurganckdok for which ADCP backscatter intensity over a full cross section are calibrated with the Sediview procedure and vertical sediment and salt profiles are recorded with the SiltProfiler equipment
7. Through tide measurements of vertical sediment concentration profiles -including near bed highly concentrated suspensions- with the SiltProfiler equipment. Executed over a grid of points near the entrance of Deurganckdok.
8. Monitoring dredging activities at entrance channels towards the Kallo, Zandvliet and Berendrecht locks

[1] cancelled report

[2] considered in report 5.6 'Analysis of ambient conditions during 2006' (I/RA/11291/06.091/MSA) in the framework of the study 'Extension of the study about density currents in the Beneden Zeeschelde'

9. Monitoring dredging and dumping activities in the Lower Sea Scheldt

In situ calibrations were conducted on several dates to calibrate all turbidity and conductivity sensors (IMDC, 2006a & IMDC, 2007a).

1.4. Structure of this report

This report is the factual data report for two measurement actions during the first three months of 2007:

- Monitoring salinity and sediment concentration in the Lower Sea Scheldt taken from on permanent data acquisition sites at Oosterweel, Prosperpolder and up- (buoy 97) and downstream (buoy 84) of the Deurganckdok.
- Monitoring dredging and dumping activities in the Lower Sea Scheldt.

Beside these actions, navigation and meteorological conditions are also reported.

The first chapter comprises an introduction. The second chapter describes the project. Chapter 3 summarizes the measurement campaign, while the ambient conditions are discussed in Chapter 4.

2. SEDIMENTATION IN DEURGANCKDOK

2.1. Project Area: Deurganckdok

Deurganckdok is a tidal dock situated at the left bank in the Lower Sea Scheldt, between Liefkenshoek and Doel. Deurganckdok has the following characteristics:

1. the dock has a total length of 2750 m and is 450 m wide at the Scheldt end and 400 m wide at the inward end of the dock
2. The bottom of Deurganckdok is provided at a depth of –17m TAW in the transition zones between the quay walls and the central trench and of –19m TAW in the central trench.
3. the quay walls reach up to +9m TAW

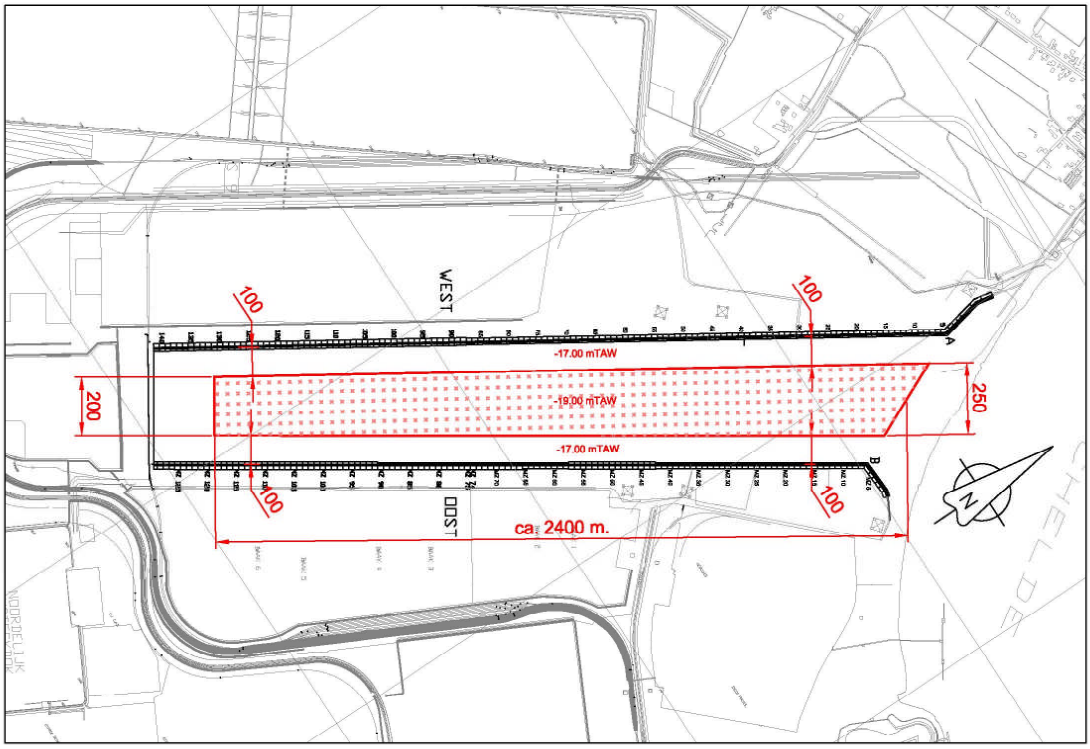

Figure 2-1: Overview of Deurganckdok

The dredging of the dock is performed in 3 phases. On 18 February 2005 the dike between the Scheldt and the Deurganckdok was breached. On 6 July 2005 Deurganckdok was officially opened. The second dredging phase was finalized a few weeks later. The first terminal operations have started since.

2.2. Overview of the studied parameters

The first part of the study aims at determining a sediment balance of Deurganckdok and the net influx of sediment. The sediment balance comprises a number of sediment transport modes: deposition, influx from capital dredging works, internal replacement and removal of sediments due to maintenance dredging (Figure 2-2).

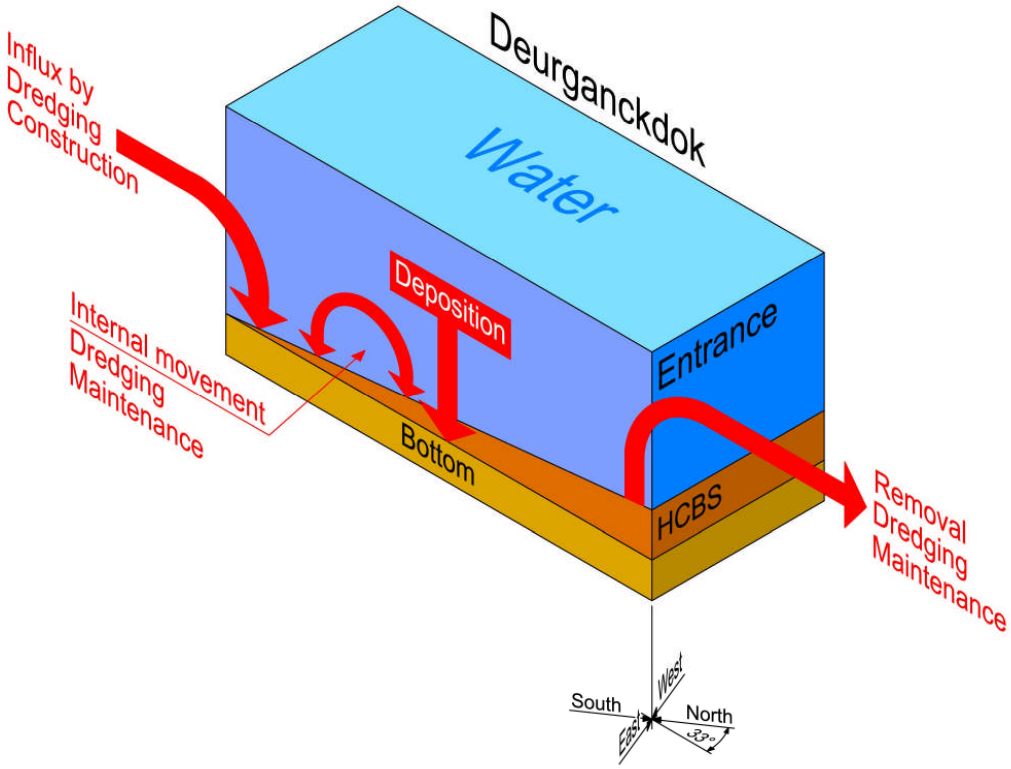

Figure 2-2: Elements of the sediment balance

A net deposition can be calculated from a comparison with a chosen initial condition t_0 (Figure 2-3). The mass of deposited sediment is determined from the integration of bed density profiles recorded at grid points covering the dock. Subtracting bed sediment mass at t_0 leads to the change in mass of sediments present in the dock (mass growth). Adding cumulated dry matter mass of dredged material removed since t_0 and subtracting any sediment influx due to capital dredging works leads to the total cumulated mass entered from the Scheldt river since t_0.

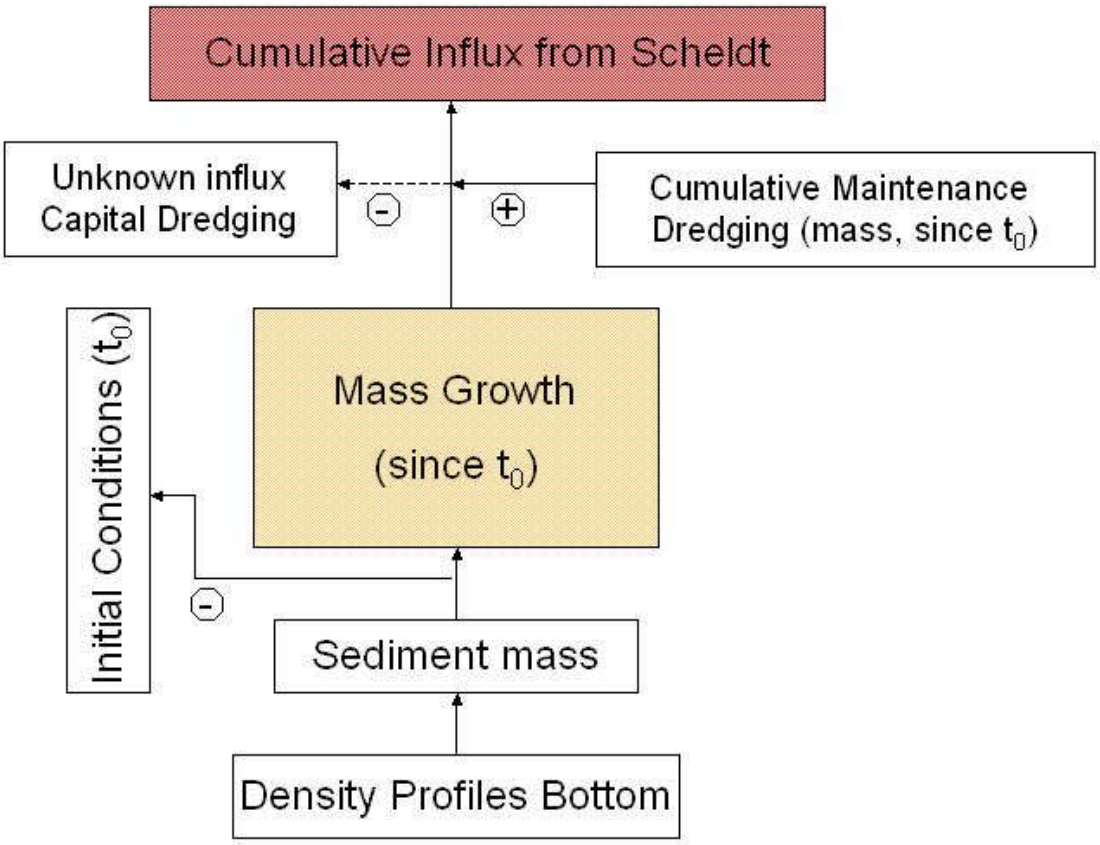

Figure 2-3: Determining a sediment balance

The main purpose of the second part of the study is to gain insight in the mechanisms causing siltation in Deurganckdok. The following mechanisms will be aimed at in this part of the study:

- Tidal prism, i.e. the extra volume in a water body due to high tide
- Vortex patterns due to passing tidal current
- Density currents due to salt gradient between the Scheldt river and the dock
- Density currents due to highly concentrated benthic suspensions

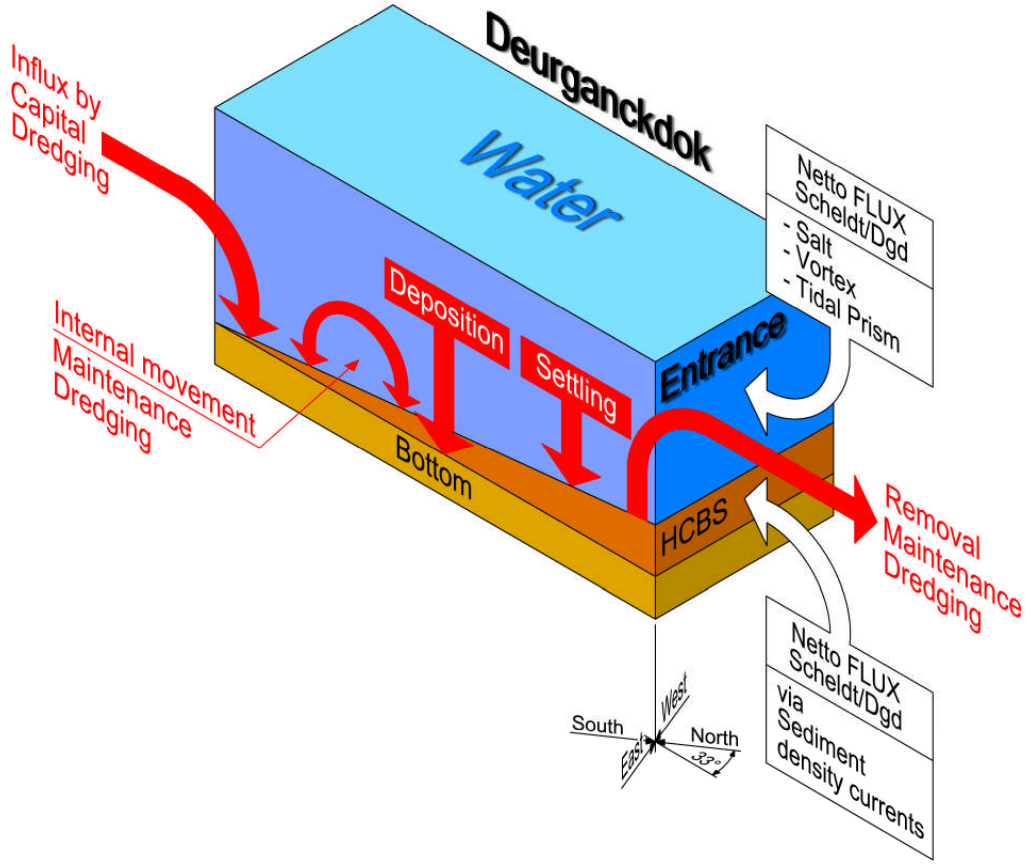

Figure 2-4: Transport mechanisms

These aspects of hydrodynamics and sediment transport have been landmark in determining the parameters to be measured during the project. Measurements will be focused on three types of timescales: one tidal cycle, one neap-spring cycle and seasonal variation within one year.

Following data are being collected to understand these mechanisms:

- Monitoring upstream discharge in the Scheldt river.
- Monitoring Salt and sediment concentration in the Lower Sea Scheldt at permanent measurement locations at Oosterweel, up- and downstream of the Deurganckdok.
- Long term measurement of salt and suspended sediment distribution in Deurganckdok.
- Monitoring near-bed processes (current velocity, turbidity, and bed elevation variations) in the central trench in the dock, near the entrance as well as near the current deflecting wall location.
- Dynamic measurements of current, salt and sediment transport at the entrance of Deurganckdok.
- Through tide measurements of vertical sediment concentration profiles -including near bed high concentrated benthic suspensions.
- Monitoring dredging activities at entrance channels towards the Kallo, Zandvliet and Berendrecht locks as well as dredging and dumping activities in the Lower Sea Scheldt.
- In situ calibrations were conducted on several dates to calibrate all turbidity and conductivity sensors.

2.3. Specific objectives of this report

The natural ambient conditions in the Scheldt estuary change from the mouth near Vlissingen to the upstream boundaries near Gent and the tributaries. Furthermore navigation and dredging activities are important human activities in the Lower Sea Scheldt.

These natural and human conditions can help to gain insight in the mechanisms causing siltation in Deurganckdok. For this reason this report summarises the following data for the first 3 months of 2007:

- Ambient characteristics in the Lower Sea Scheldt:
    - Tide
    - Current
    - Salinity
    - Temperature
    - Turbidity/Suspended sediment concentration
    - Salinity downstream
- Fresh water inflow from the tributaries
- Meteorological conditions
- Human activities
    - Dredging/dumping
    - Navigation

3. THE MEASUREMENT CAMPAIGN

3.1. Overview of the measurement campaigns

Several measurement campaigns took place between the 1st of January and the 31st of March 2007. Near bed continuous monitoring and long term salinity measurements took place at the entrance and in Deurganckdok and finally further long term measurements were executed near buoy 84 and buoy 97. Through tide measurements were not executed during this reporting period. The long term measurements at buoys 84 and 97 started the 21st, respectively the 20th of September 2005 and will be continued at least until the 31st of March 2008. Table 3-1 gives an overview of the coordinates of the measurement locations and the periods when data was gathered. Considering the through tide measurements coordinates are given for the sailed transects (i.e. left bank and right bank position). Figure 3-1 shows the Lower Sea Scheldt with the measurement locations. A sketch of each measurement campaign can be found from Figure 3-2 to Figure 3-14.

A detailed description of the near bed continuous monitoring and the long term salinity measurements during this reporting period can be found in IMDC (2007q) and in IMDC (2007l). The factual data of the long term measurements near buoy 84 an buoy 97 during the first three months of 2007 are given in this report.

Table 3-1:Measurement locations and periods for the HCBS2 and Deurganckdok measurements (01/01/2006 – 31/03/2007)

Through tide measurements: Transects					
Location	*Easting (UTM ED 50)*		*Northing (UTM ED 50)*		*Period*
Deurganckdok (in dock)	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	21/03/2006 & 26/09/2006
(transect Y)	*589059*	591298	*5684948*	*5683077*	
Liefkenshoek	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	22/03/2006 & 27/09/2006
(transect I)	590318	590771	5684257	5683302	
Deurganckdok (downstream)	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	22 & 23/03/2006 & 27 & 28/09/2006
(transect K)	588484	589775	5684924	5685384	
Deurganckdok (in dock)	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	22/03/2006 & 27/09/2006
(transect DGD)	588765	588541	5684056	5684527	
Schelle	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	23/03/2006 & 28/09/2006
(transect S)	592645	592953	5665794	5665682	

Through tide measurements: Transects					
Waarde	*Left Bank*	*Right Bank*	*Left Bank*	*Right Bank*	23/03/2006 & 28/09/2006
(transect W)	573541	571318	5696848	5694933	
Through tide measurements: Siltprofiler gauging points					
Location	*Easting (UTM ED 50)*		*Northing (UTM ED 50)*		*Period*
Location 1: Xa	588549		5684335		21/03/2006 & 26/09/2006
Location 2: Xb	588596		5684411		
Location 3: Xc	588643		5684486		
Location 4: Xd	588690		5684562		
Location 5: Xe	588737		5684638		
Location 6: Ya	588606		5684217		
Location 7: Yb	588653		5684293		
Location 8: Yc	588700		5684368		
Through tide measurements: Siltprofiler gauging points					
Location	*Easting (UTM ED 50)*		*Northing (UTM ED 50)*		*Period*
Location 9: Yd	588747		5684444		21/03/2006 & 26/09/2006
Location 10: Ye	588793		5684520		
Location 11: Za	588662		5684099		
Location 12: Zb	588709		5684174		
Location 13: Zc	588756		5684250		
Location 14: Zd	588803		5684326		
Location 15: Ze	588850		5684402		
Near bed continuous monitoring					
Location	*Easting (UTM ED 50)*		*Northing (UTM ED 50)*		*Period*
Deurganckdok CDW	588653		5684906		14/03/2006 – 05/04/2006
Deurganckdok CDW	588685		5684880		19/04/2006 – 23/05/2006
Deurganckdok Sill	588805		5684170		19/04/2006 – 23/05/2006
Deurganckdok CDW	588685		5684880		18/07/2006 – 11/10/2006
Deurganckdok Sill	588805		5684170		19/07/2006 – 11/10/2006
Deurganckdok CDW	588685		5684880		15/03/2007 – 12/04/2007

Deurganckdok Sill	588805	5684170	09/02/2007 – 18/04/2007

Salt Silt measurements Deurganckdok			
Location	*Easting (UTM ED 50)*	*Northing (UTM ED 50)*	*Period*
P&O 1	588074	5682942	17/03/2006 – 28/04/2006
P&O 2	588767	5684045	17/03/2006 – 28/04/2006
PSA	588536	5684523	17/03/2006 – 28/04/2006
P&O 1	588074	5682942	20/07/2006 – 12/10/2006
P&O 2	588767	5684045	20/07/2006 – 12/10/2006
PSA	588536	5684523	20/07/2006 – 12/10/2006
P&O 1	588074	5682942	12/02/2007 – 27/03/2007
P&O 2	588767	5684045	12/02/2007 – 27/03/2007
PSA	588536	5684523	12/02/2007 – 27/03/2007
Settling velocity – INSSEV			
Location	*Easting (UTM ED 50)*	*Northing (UTM ED 50)*	*Period*
Deurganckdok CDW	588717	5684898	05/09/2006
Deurganckdok SILL	588800	5684250	06/09/2006
Deurganckdok Western quay wall	588452	5684355	07/09/2006

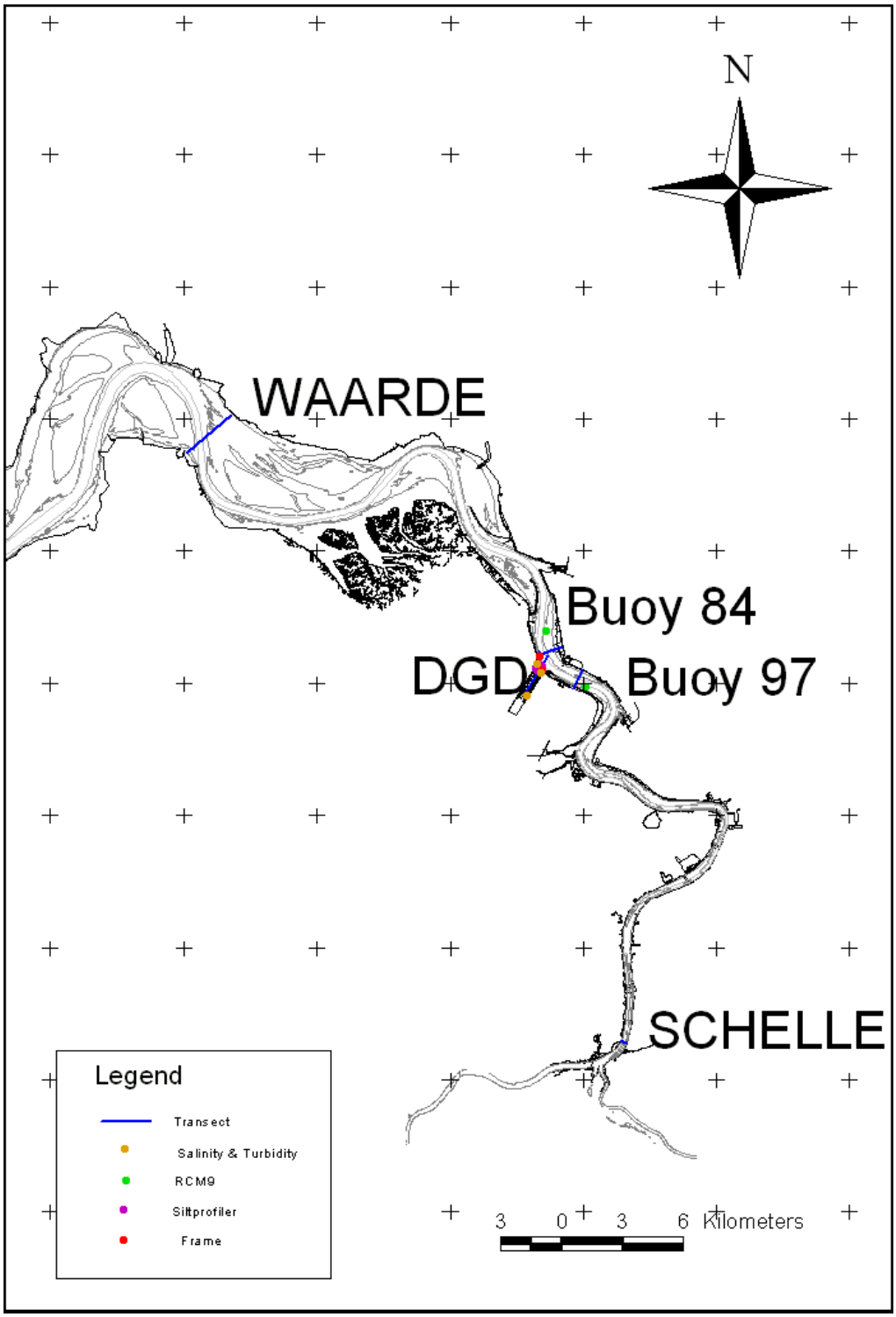

Figure 3-1: The measurement locations in the Lower Sea Scheldt and Deurganckdok (01/01/2006 – 31/03/2007)

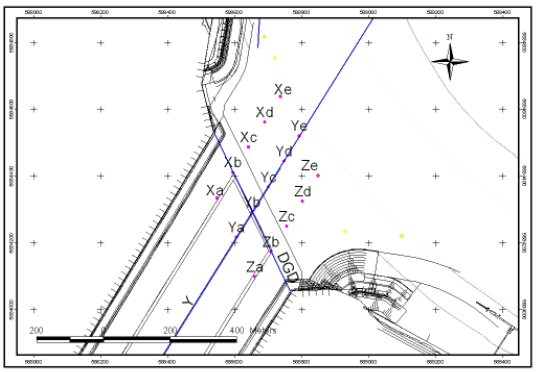

Figure 3-2: Through tide measurements - Deurganckdok 21/03/2006 & 26/09/2006 (Siltprofiler)

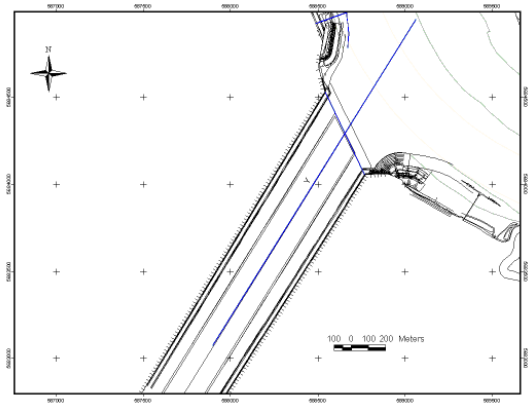

Figure 3-3: Through tide measurements – Deurganckdok 21/03/2006 & 26/09/2006 (salinity)

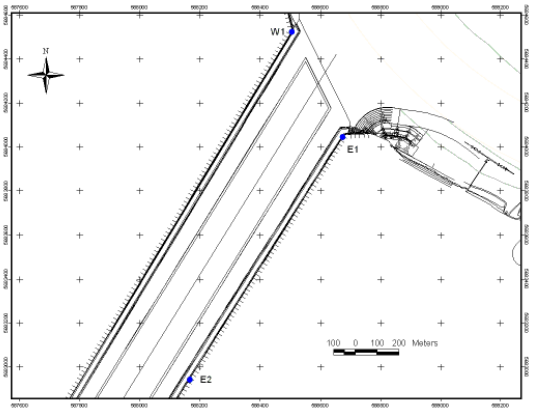

Figure 3-4: Long term salinity measurements Deurganckdok 17/03/2006 – 28/04/2006, 20/07/2006 – 12/10/2006 & 12/02/2007 – 27/03/2007

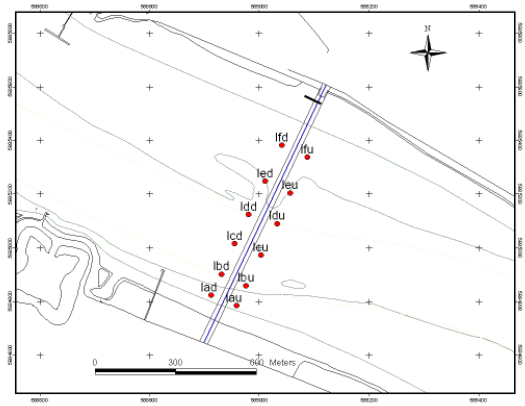

Figure 3-5:Through tide measurements - Liefkenshoek 22/03/2006 & 27/09/2006 (ADCP+SiltProfiler)

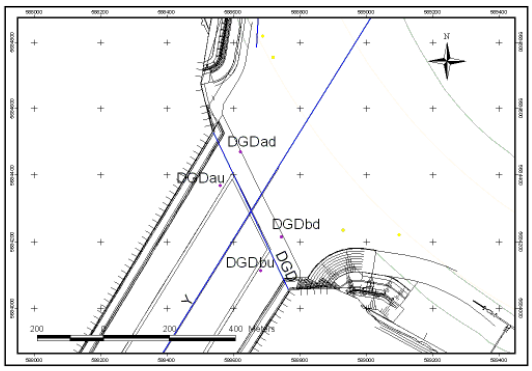

Figure 3-6: Through tide measurements - Deurganckdok 22/03/2006 & 27/09/2006 (ADCP)

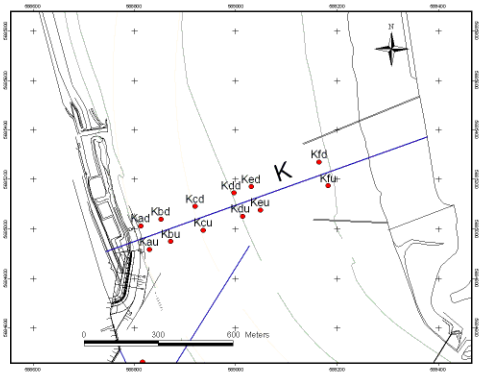

Figure 3-7: Through tide measurements - Deurganckdok 22/03/2006 & 27/09/2006 (ADCP); 23/03/2006 & 28/09/2006 (ADCP+SiltProfiler)

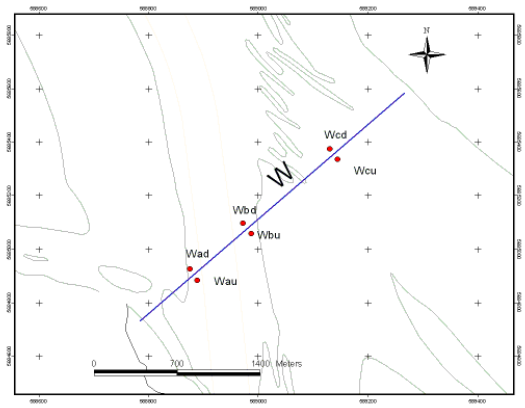

Figure 3-8: Through tide measurements - Waarde 23/03/2006 & 28/09/2006 (ADCP)

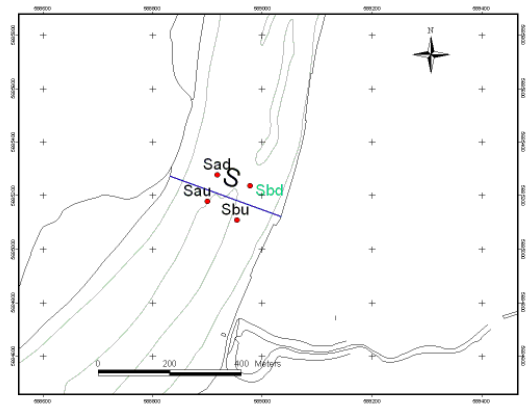

Figure 3-9: Through tide measurements - Schelle 23/03/2006 & 28/09/2006 (ADCP)

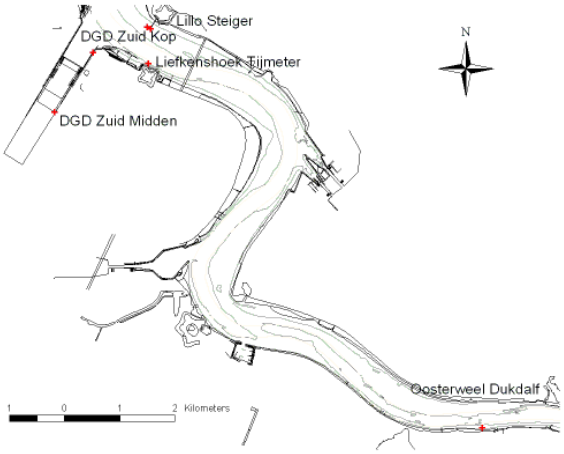

Figure 3-10: Calibration measurements - 15/03/2006 & 14/04/2006

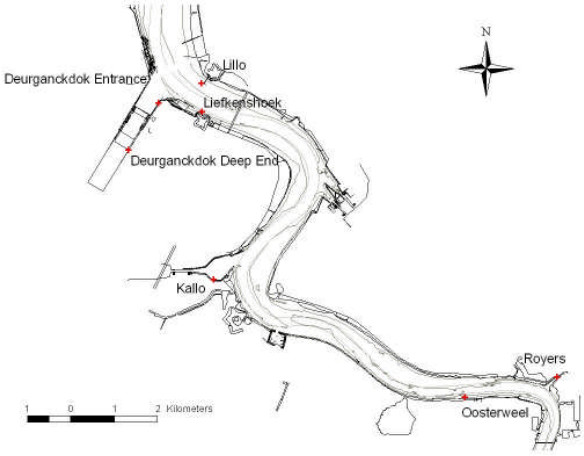

Figure 3-11: Calibration measurements – 23/06/2006 & 18/09/2006

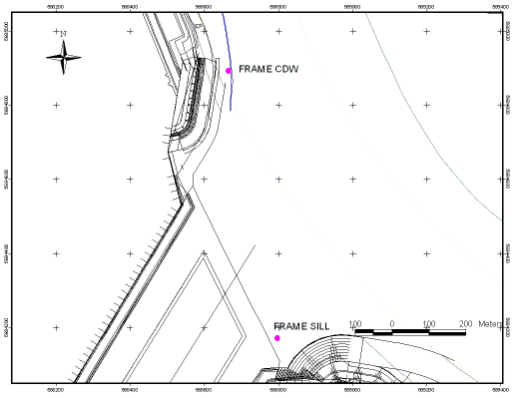

Figure 3-12:Near bed continuous monitoring
14/03/2006 – 23/05/2006
18/07/2006 – 11/10/2006
09/02/2007 – 18/04/2007

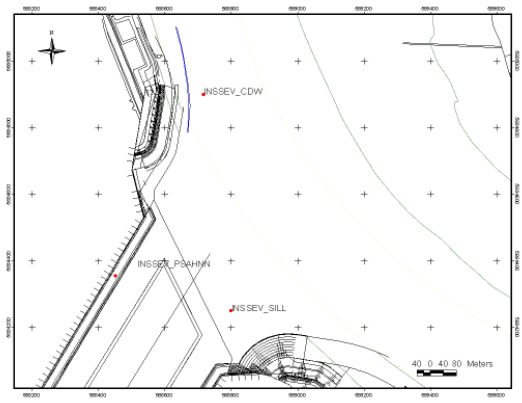

Figure 3-13: Settling velocity (INSSEV) 05/09/2006 – 07/09/2006

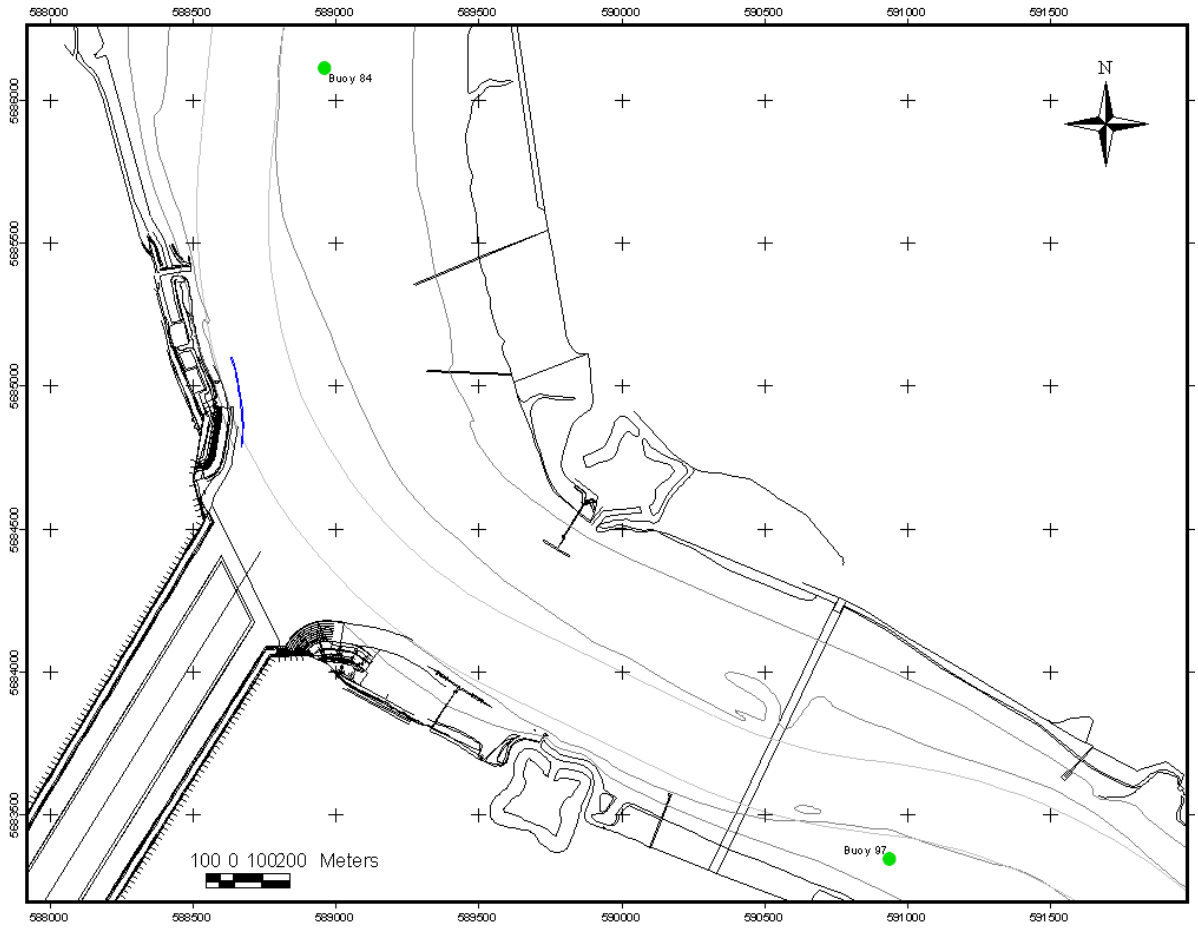

Figure 3-14: Long term measurements in the Lower Sea Scheldt

3.2. Description of the data

3.2.1. Parameters and equipment

The data gathered during the measurement campaigns is current velocity, current direction, temperature, pressure and turbidity. For the through tide measurements also data about depth and position of the hard and soft bottom is collected. To report the results in most cases current velocity, current direction, temperature, salinity and suspended sediment concentration is used.

A detailed description of the data acquisition can be found in IMDC (2006b – 2006l; 2007a-2007q).

During the long term stationary measurements current, temperature, salinity and turbidity where measured using Aanderaa RCM-9's. A fixed set up was used in which a steel frame was placed on the bottom, with two RCM-9s suspended and held upright by subsurface buoys (Figure 3-15). The lower RCM-9 was placed at 0.80 m above the bottom, while the upper one was placed at a distance of 2.5 m above the lower one. To collect data, check and clean the instruments the instruments were surfaced on regular bases.

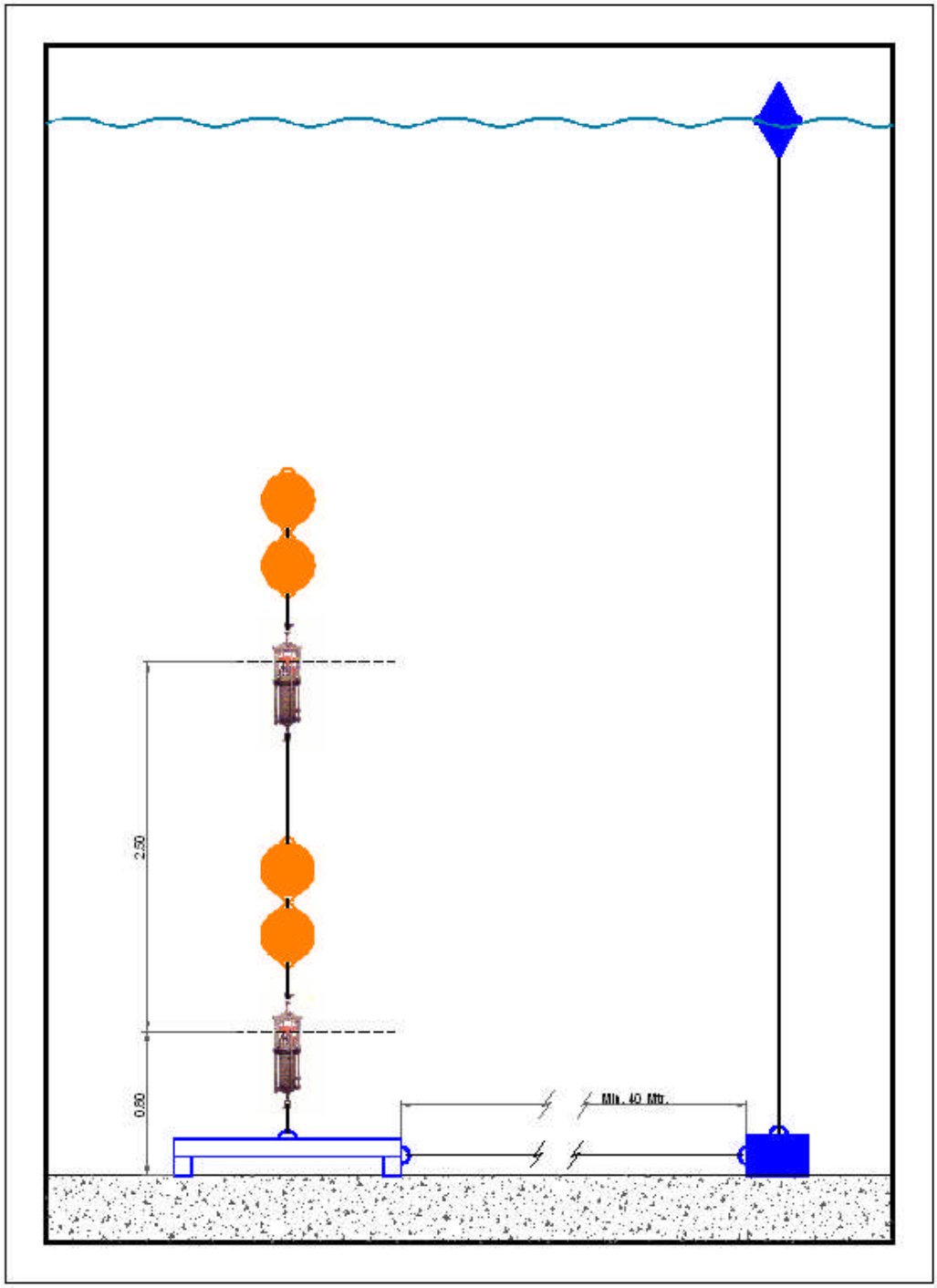

Figure 3-15: Fixed set-up for two RCM9 units with subsurface buoys (orange)

The instruments were set up to measure every 10 minutes. All sensors (temperature, pressure, conductivity, turbidity, tilting) except the Doppler Current Sensor were set to record once every 10 minutes. The Doppler Current Sensor sent 600 pings during every 10 minute-interval and calculated the average value for current speed and direction over this interval. Data storage units

in the instruments logged all the measured values. A picture of the set-up is shown in Figure 3-16. More information about the Aanderaa RCM9 can be found in IMDC (2005l).

Figure 3-16: Set-up of two RCM-9 units

Table 3-2 gives an overview of the measured parameters during the long term measurements and the depth at which these were registered.

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Table 3-2: The equipment and measured parameters per location (01/01/2006 – 31/03/2007)

Through tide measurements									
Location	**Period**	**Instrument**	**Velocity**	**Direction**	**Temperature**	**Pressure**	**Conductivity**	**Turbidity**	**Depth**
Deurganckdok (in dock, transect Y	21/03/06 & 26/09/06	SiltProfiler			X	X	X	X	
		Echosounder							X
		Aanderaa RCM 9			X	X	X		
		CTD			X	X	X		
Liefkenshoek (transect I)	22/03/06 & 27/09/06	ADCP	X	X					
		OBS			X	X	X	X	
		CTD			X	X	X		
		Pump Sampler							
		SiltProfiler			X	X	X	X	
		Echosounder							X
Deurganckdok (transect K & in dock transect DGD)	22/03/06 & 27/09/06	ADCP	X	X					
		OBS			X	X	X	X	
		CTD			X	X	X		
		Pump Sampler							
Deurganckdok (transect K)	23/03/06 & 28/09/06	SiltProfiler			X	X	X	X	
		Echosounder							X
Schelle (transect S)	23/03/06 & 28/09/06	ADCP	X	X					
		OBS			X	X	X	X	
		CTD			X	X	X		
		Pump Sampler							
Waarde (Transect W)	23/03/06 & 28/09/06	Same as Schelle (transect S)							

Near bed continuous monitoring									
Location	**Period**	**Instrument**	**Velocity**	**Direction**	**Temperature**	**Pressure**	**Conductivity**	**Turbidity**	**Depth**
Deurganckdok CDW	14/03/2006 – 05/04/2006	Valeport MIDAS OBS3+	X	X	X	X	X	X	
		Aanderaa RCM9	X	X	X	X	X	X	
		ALTUS							X
		ARGUS			X	X	X	X	
Deurganckdok CDW	19/04/2006 – 23/05/2006	Idem	Idem						
Deurganckdok Sill	19/04/2006 – 23/05/2006	Idem	Idem						
Deurganckdok CDW	18/07/2006 – 11/10/2006	Idem	Idem						
Deurganckdok Sill	19/07/2006 – 11/10/2006	Idem	Idem						
Deurganckdok CDW	15/03/2007 – 12/04/2007	Idem	Idem						
Deurganckdok Sill	09/02/2007 – 18/04/2007	Idem	Idem						

Long-term salinity measurements								
Location	**Period**	**Instrument**	**Velocity**	**Direction**	**Temperature**	**Pressure**	**Conductivity**	**Turbidity**
Deurganckdok (Quay wall)	17/03/2006 – 28/04/2006	Aanderaa RCM9	X	X	X	X	X	X
		OBS 3A			X	X	X	X
Deurganckdok (Quay wall)	20/07/2006 – 12/10/2006	OBS 3A			X	X	X	X
Deurganckdok (Quay wall)	12/02/2007 – 27/03/2007	OBS 3A			X	X	X	X
Deurganckdok (Quay wall)	12/02/2007 – 27/03/2007	OBS 3A			X	X	X	X

Long-term measurements								
Location	**Period**	**Instrument**	**Velocity**	**Direction**	**Temperature**	**Pressure**	**Conductivity**	**Turbidity**
Buoy 84	01/01/2006 – 30/06/2006	Aanderaa RCM 9	-5.6m TAW					
		Aanderaa RCM 9	-8.1m TAW					
Buoy 97	01/01/2006 – 30/06/2006	Aanderaa RCM 9	-5.3m TAW					
		Aanderaa RCM 9	-7.8m TAW					
Buoy 84	01/07/2006 – 31/12/2006	Aanderaa RCM 9	-5.6m TAW					
		Aanderaa RCM 9	-8.1m TAW					
Buoy 97	01/07/2006 – 31/12/2006	Aanderaa RCM 9	-5.3m TAW					
		Aanderaa RCM 9	-7.8m TAW					
Buoy 84	01/01/2007 – 31/03/2007	Aanderaa RCM 9	-5.6m TAW					
		Aanderaa RCM 9	-8.1m TAW					
Buoy 97	01/01/2007 – 31/03/2007	Aanderaa RCM 9	-5.3m TAW					
		Aanderaa RCM 9	-7.8m TAW					

3.2.2. Overview of the data acquisition (measurements buoy 84 & buoy 97)

A chronological overview of the measurements, per location and per instrument, is given in Table 3-3. An explanation for missing and faulty data is also given in Table 3-3.

Table 3-3: Chronological overview of the RCM-9 measurements

Buoy 84 top – 3.3 m above bottom				
Period	*Sensor*	*No data*	*Faulty data*	Comment
20/09/2005				Start measurement period
01/01/2007	1225			Start reporting period
14/02/2007 – 21/02/2007	1225	X		Technical problem
25/03/2007			X	Faulty tide data
31/03/2007	1225			End reporting period
Buoy 84 bottom – 0.8 m above bottom				
Period	*Sensor*	*No data*	*Faulty data*	Comment
20/09/2005				Start measurement period
01/01/2007	1229			Start reporting period
18/01/2007 – 24/01/2007	1229	X		Detached battery
25/03/2007			X	Faulty tide data
31/03/2007	1229			End reporting period
Buoy 97 top – 3.3 m above bottom				
Period	*Sensor*	*No data*	*Faulty data*	Comment
21/09/2005				Start measurement period
01/01/2007	1164			Start reporting period
14/02/2007 – 21/03/2007	1164	X		Lost instrument
25/03/2007			X	Faulty tide data
31/03/2007	1170			End reporting period
Buoy 97 bottom – 0.8 m above bottom				
Period	*Sensor*	*No data*	*Faulty data*	Comment
21/09/2005				Start measurement period
01/01/2007				Start reporting period
01/01/2007 – 24/01/2007	1220	X		Detached battery

05/03/2007 – 07/03/2007	1220		X	Faulty turbidity data
05/03/2007 – 07/03/2007	1220		X	Faulty current direction data
07/03/2007	1220		X	Faulty current velocity data
25/03/2007			X	Faulty tide data
31/03/2007	1220			End reporting period

3.3. Processing of datasets

3.3.1. Methodology of Processing

The collected data was validated and outliers were removed. Erroneous measurements because of malfunction of sensors, growth on sensors, instrument failure were also removed from the dataset and are documented in 3.2.2.

Salinity was calculated using the temperature, conductivity and pressure in the pps-78 formula (Unesco, 1991 & IMDC, 2002).

Turbidity values were converted to suspended sediment concentration using the equation of the calibration curve. By submerging each turbidity sensor in clean water at almost every redeployment, the bias of the turbidity sensors was tested.

The calibration procedure and calibration graphs can be found in IMDC (2006a and 2007a).

3.3.2. Results (weekly)

Measurements are visualized per instrument, location and per week in APPENDIX B.

- The title shows the week number followed by the year
- The first graph shows the current velocity and the current direction. The direction is scaled from 0 to 400 degrees, for convenience
- The second graph depicts the salinity and temperature
- The third and last graph shows the waterlevel at the nearest tidal gauge and the suspended sediment concentration

All times are given in MET.

3.3.3. Results (monthly)

Monthly results are reported in APPENDIX B. The minimum, maximum and average value for velocity magnitude, temperature and suspended sediment concentration is given for every month. For salinity the minimum, maximum and mean are calculated for both high water slack and low water slack.

3.3.4. Results (deployment period)

An overview of the evolution of the monthly minimum, maximum and average values for velocity magnitude, temperature and suspended sediment concentration is given in APPENDIX B. For salinity the minimum, maximum and mean are given for both high water slack and low water slack. The graphs are given for the whole deployment period (September 2005 – March 2007).

3.3.5. Total results (January 2007 – March 2007)

The results for the whole deployment period are also given in APPENDIX B. The minimum, maximum and average value for velocity magnitude, temperature and suspended sediment concentration is given for the period from January 2007 till March 2007. For salinity the minimum, maximum and mean are calculated for both high water slack and low water slack is given.

4. AMBIENT CONDITIONS

4.1. Environmental characteristics in the Beneden Zeeschelde

4.1.1. Other measurement campaigns

4.1.1.1. Other RCM-9 set-ups

Beside the HCBS2 measurements also other long-term measurements were executed in the Lower Sea Scheldt during the first 3 months of 2007. At Oosterweel left bank (or Dukdalf), current, temperature, salinity and turbidity measurements were conducted using 2 Aanderaa RCM9 units. Another RCM-9 unit was also used at Prosperpolder, where only temperature and salinity measurements were conducted. These instruments were suspended from a mooring post at fixed distances from the bottom. These measurements were set up and maintained by WL – Cel Hydrometrie Schelde. Figure 4-1 shows an overview of all the measurement locations (including locations of HCBS2 measurements).

The data of these measurements was processed by IMDC and is presented in APPENDIX C. Calibration of the turbidity sensors was executed by IMDC during the summer calibration. Further details of this calibration can be found in IMDC (2007a).

Table 4-1: Measurement locations and periods at Oosterweel (left bank) & Prosperpolder .

Location	***Depth sensor***	***Easting (UTM ED 50)***	***Northing (UTM ED 50)***	***Period***
Oosterweel (left bank)	4.5m above bottom (-2.3m TAW)	595574	5677278	01/07/2006 – 31/03/2007
Oosterweel (left bank)	1m above bottom (-5.8m TAW)	595574	5677278	01/07/2006 – 31/03/2007
Prosperpolder	2.5m above bottom (-1.5m TAW)	586307	5689501	15/06/2006 – 31/03/2007

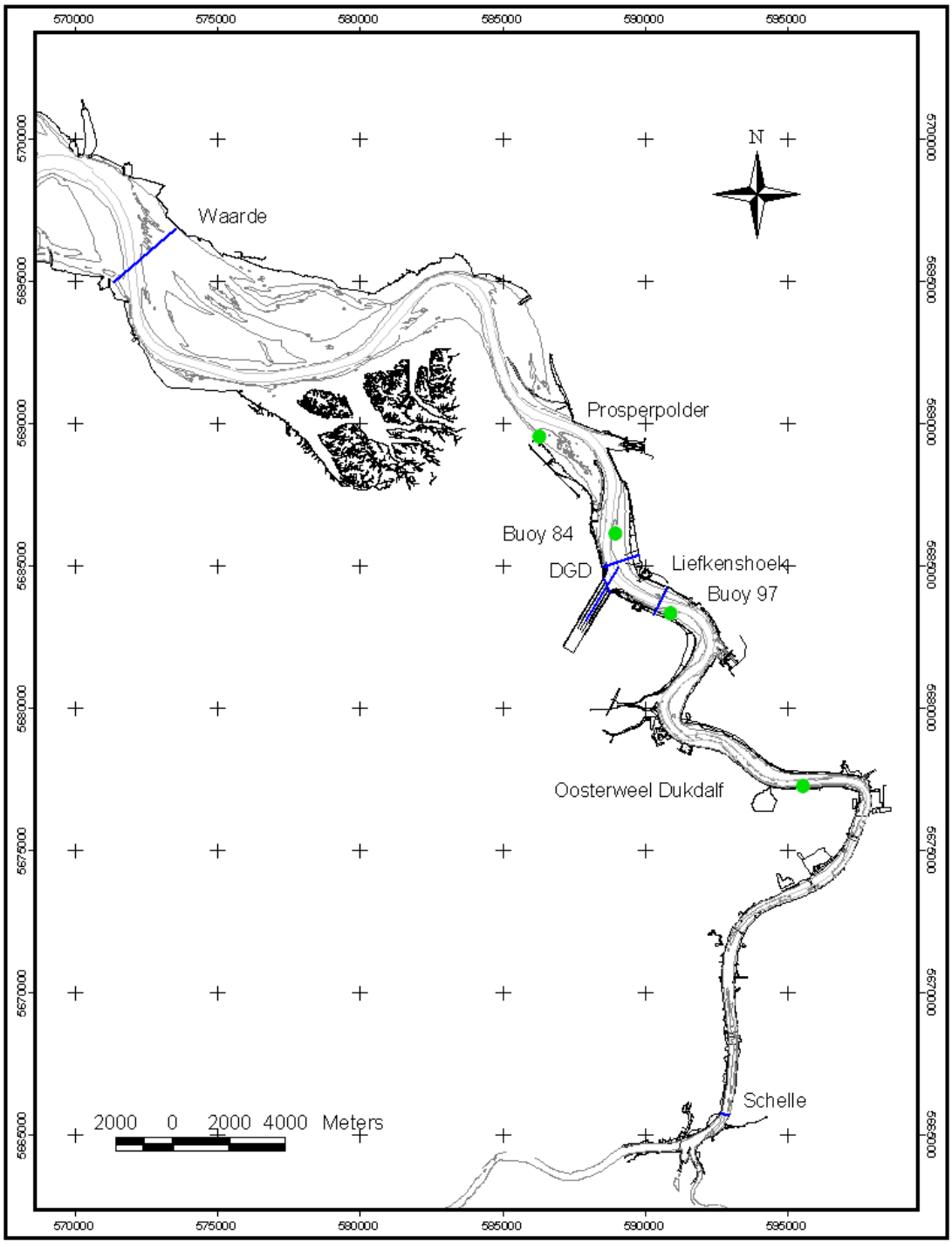

Figure 4-1: All measurement locations 07/2006 – 12/2006

The data gathered during these long-term measurements is current velocity, current direction, temperature, pressure and turbidity. In APPENDIX C the processed data is visualized per instrument, location and per week for January until March 2007.

- The title shows the week number followed by the year
- The first graph shows the current velocity and the current direction. The direction is scaled from 0 to 400 degrees, for convenience
- The second graph depicts the salinity and temperature
- The third and last graph shows the water level at the nearest tidal gauge and the suspended sediment concentration

All times are given in MET.

To convert the turbidity values to suspended sediment concentration the equation of the calibration curve was used. The calibration procedure and calibration graphs can be found in IMDC (2007a).

An overview of the measurements and an explanation of missing and faulty data for the whole period is given in Table 4-2.

Table 4-2: Chronological overview of the long term measurements at Oosterweel& Prosperpolder (01/01/2007 - 31/03/2007)

Oosterweel left bank – 4.5 m above bottom				
Period	*Sensor*	*No data*	*Faulty data*	Comment
01/07/2004				Start measurement period
01/01/2007	1117			Start reporting period
01/01/2007 – 15/02/2007	1117		X	Conductivity sensor failed
15/02/2007 – 08/03/2007		X		Data not delivered
22/03/2007 – 31/03/2007		X	X	Data not delivered
24/08/2006 – 28/09/2006		X		Data not delivered
31/03/2007	0579			End reporting period
Oosterweel left bank – 1 m above bottom				
Period	*Sensor*	*No data*	*Faulty data*	Comment
01/07/2004				Start measurement period
01/01/2007	1153			Start reporting period
01/01/2007 – 15/02/2007	1153		X	Conductivity sensor failed
25/01/2007 – 15/02/2007		X		Data not delivered
25/03/2007			X	Faulty tide data
31/03/2007	1153			End reporting period
Prosperpolder – 2.5 m above bottom				
Period	*Sensor*	*No data*	*Faulty data*	Comment
15/06/2006	0117			Start measurement period

01/01/2007	0117			Start reporting period
25/03/2007			X	Faulty tide data
31/03/2007	0117			End reporting period

Monthly results (minimum, maximum and average) are shown in APPENDIX C. The minimum, maximum and average value for velocity magnitude, temperature and suspended sediment concentration is given for every month. For salinity the minimum, maximum and mean are calculated for both high water slack and low water slack. Also an overview of the evolution of the monthly minimum, maximum and average values of these parameters is given in APPENDIX C for the whole deployment period (July 2004 – March 2007). Notice that for the suspended sediment concentration the graphs are only given since 2006. In the previous reports turbidity was presented because there was no calibration available for the turbidity sensors.

The results for the whole measurement period are also given in APPENDIX C. The minimum, maximum and average value for velocity magnitude, temperature and suspended sediment concentration is given for the period from January 2007 till March 2007. For salinity the minimum, maximum and mean are calculated for both high water slack and low water slack is given.

4.1.1.2. H-ADCP set-up

Beside the RCM-9 measurements also other long-term measurements were executed in the Lower Sea Scheldt during the first 3 months of 2007. At Oosterweel (left bank or Dukdalf) horizontal current profiles of velocity and direction were conducted by using a RD Instrument 300Khz Workhorse ADCP (Acoustic Doppler Current Profiler). This instrument was suspended from the tidal station at fixed distance from the bottom (-6.8 m TAW or 2.2m above the bottom).

The H-ADCP instrument sends acoustic signals, which reflects on the facing bank (right bank) about 275m of the H-ADCP (or sometimes on sailing vessels). These reflected signals are received and interpreted by the instrument for calculating the current direction and velocity.

The measurement campaign was set up in 2005 for the Oosterweel tunnel project. The detailed description of this measurement campaign and H-ADCP can be found in TV SAM (2006a-2006c). The data of the H-ADCP for the period 05/2005 till 06/2006 were reported in these reports of TV SAM and for the period 07/2006 till 12/2006 in HCBS2 ambient conditions report (IMDC, 2007b). Although not part of the contract, the data of January until April of 2007 was processed within the scope of this project. The results are presented in APPENDIX D.

Table 4-3: Measurement locations and periods at Oosterweel (left bank or Dukdalf)

Location	*Depth H-ADCP*	*Easting (UTM ED 50)*	*Northing (UTM ED 50)*	*Period*
Oosterweel (left bank)	2.2m above bottom (-6.8m TAW)	595574	5677278	01/01/2007 – 18/04/2007

The data gathered during these long-term measurements is current velocity and current direction. In APPENDIX D the processed data is visualized per instrument, location and per week for January until April 2007.

- The title shows the year followed by week number

- The first graph shows the current velocity on a horizontal transect and the average horizontal velocity (black line). The Y-axis gives the distance to the H-ADCP, 275m further situates the facing bank or the right bank of the river Scheldt
- The second graph shows the current direction (Azimuth to North) on a horizontal transect of 275m and the water level at the nearest tidal gauge (in mTAW). A current direction of about 90° corresponds to flood and about 270° to ebb.

All times are given in MET.

An overview of the measurements and an explanation of missing and faulty data for the whole period is given in Table 4-4.

Table 4-4 Chronological overview of the long term measurements of H-ADCP at Oosterweel (01/01/2007 - 18/04/2007):

H-ADCP at Oosterweel – 2.2 m above bottom			
Period	*No data*	*Faulty data*	*Comment*
23/05/2005			Start measurement period
01/01/2007			Start reporting period
17/01/2007 – 20/01/2007		X	Failing communication between PC & H-ADCP
23/01/2007 – 27/01/2007		X	Failing communication between PC & H-ADCP
30/01/2007 – 11/02/2007		X	Failing communication between PC & H-ADCP
14/02/2007 – 22/02/2007		X	Failing Communication between PC & H-ADCP
22/02/2007 – 21/03/2007	X		PC broken
22/03/2007 – 23/03/2007		X	Failing communication between PC & H-ADCP
25/03/2007		X	Faulty tide data
06/04/2007 – 18/04/2007	X		PC was shutting down
18/04/2007			H-ADCP broken and end of the measurement period
18/04/2007			End reporting period

4.1.2. Vertical tide

Tidal data was delivered for the period from 01/01/2007 till 31/03/2007 by Waterbouwkundig Laboratorium – Cel Hydrometrie Schelde. It is reported together with the processed data of the long term measurement campaigns and those at Oosterweel and Prosperpolder in APPENDIX B respectively APPENDIX C.

4.1.3. Salinity downstream

Salinity data of Baalhoek and Hoofdplaat was collected from the Hydro Meteo Centrum Zeeland (HMCZ, 2007) and processed by IMDC. Outliers were screened and removed. Monthly results (minimum, maximum and average values for salinity) are reported in APPENDIX E.

4.2. Fresh water inflow from the tributaries

The fresh water discharge of the Kleine Nete (Grobbendonk), the Grote Nete (Hulshout), the Dijle (Wijgmaal), The Demer (Wilsele), the Dender (Dendermonde), the Zenne (Eppegem) and the Bovenschelde (Melle) are provided by the Hydrologische Informatie Centrum of the Ministerie van de Vlaamse Gemeenschap – Departement Leefmilieu en Infrastructuur Afdeling Waterbouwkundig Laboratorium. The gauging stations are not influenced by the tide. The calculated discharges at the gauging stations are converted to discharges at the mouth of the tributaries and then to a total fresh water discharge at Schelle. This procedure is described in AZ (1974) and is based on the use of correction coefficients that take in account the surface of the hydrological basins.

In APPENDIX F a graph of the evolution of the fresh water discharge is given just as a table with the decade averages of the fresh water discharge. Also the monthly averages are compared to the expected discharges in a graph. Notice that the given values are only temporary since no influence of possible growth is taken in to account jet. This will be done at the end of the year by the Hydrologische Informatie Centrum of the Ministerie van Mobiliteit en Openbare Werken - Departement Mobiliteit en Openbare Werken - Afdeling Waterbouwkundig Laboratorium en Hydrologisch Onderzoek.

4.3. Meteorological data

The meteorological conditions for the measurement station Deurne for the period of 1 September 2006 till 31 March 2007 are reported in APPENDIX G. This data was obtained from the KMI (Koninklijk Meteorologisch Instituut = Royal Meteorological Institute of Belgium) (KMI, 2006a-2006d; KMI, 2007a-2007c). The meteorological data of September, October, November and December of 2006 can be found APPENDIX G. This data was not reported in the previous ambient conditions report (IMDC, 2007b). Deurne is the closest weather station of the KMI.

4.4. Human Activities

4.4.1. Dredging activities

Afdeling Maritieme Toegang provided information about the dates, times, volumes and locations of dredging activities. In APPENDIX H an overview is given of all the dredging activities from 01/01/2007 till 31/03/2007. Weekly volumes are given per location.

4.4.2. Navigation

Weekly data of navigation was delivered by Afdeling Scheepvaartbegeleiding – Schelde Rader Keten for the period of 01/01/2007 till 31/03/2007. To order the data a splitting up of the Beneden Zeeschelde was done in 4 areas. The first area is from de Belgian border up to locks of Zandvliet – Berendrecht (sluizencomplex Zandvliet – Berendrecht), the second goes from this point forward up to Deurganckdok. The third area is from Deurganckdok up to the lock of Kallo (Kallosluis) and finally the fourth goes up to the lock of Royers (Royerssluis). A more detailed description of the areas can be found in APPENDIX I. Also a distinction is made between the draughts. In APPENDIX I a total number is given which refers to the total of passing ships registered by Afdeling Scheepvaartbegeleiding - Schelde Radar Keten. In addition a difference was made between inland navigation and seagoing ships, just as between arrival and departure. Notice that for a certain area and certain draught, the total may deviate from the sum of inland navigation and seagoing. This can be explained by the presence of ships like dredgers, which were only counted in the column ‘total’. Also a difference may occur between the total number and the sum of the arrival and departure number. This is due to vessels that have the same entry and exit point.

Finally it should be mentioned that not all inland shipping is observed by the system, which means that the actual number of inland shipping will be higher.

5. REFERENCES

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IMDC (2005f). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 2.5: Deurganckdok 16/02/2005, I/RA/11265/05.013/MSA.

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IMDC (2006c) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV MeetcaDmpagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.2 22 March 2006 Parel 2 – Deurganckdok (downstream), I/RA/11291/06.095/MSA.

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IMDC (2006f) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 7.5 23 March 2006 Laure Marie – Deurganckdok (downstream), I/RA/11291/06.098/MSA.

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IMDC (2006l) Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 5.3 Overview of ambient conditions in the river Scheldt – Januari-June 2006 (I/RA/11291/06.089/MSA), in opdracht van AWZ.

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IMDC (2007c). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.1 Through tide Measurement Sediview & Siltprofiler 27/9 Stream - Liefkenshoek (I/RA/11291/06.104/MSA), in opdracht van AWZ.

IMDC (2007d). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.2 Through tide Measurement Sediview 27/9 Veremans - Raai K (I/RA/11291/06.105/MSA), in opdracht van AWZ.

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IMDC (2007h). Uitbreiding studie densiteitsstromingen in de Beneden Zeeschelde in het kader van LTV Meetcampagne naar hooggeconcentreerde slibsuspensies Deelrapport 11.6 Through tide Measurement Salinity Distribution 26/9 Scheldewacht – Deurganckdok in opdracht van AWZ.

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IMDC (2007j) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.2 Sediment Balance: Three monthly report 1/7/2006 – 30/09/2006 (I/RA/11283/06.114/MSA)

IMDC (2007k) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.3 Sediment Balance: Three monthly report 1/10/2006 – 31/12/2006 (I/RA/11283/06.115/MSA)

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IMDC (2007m) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 1.5 Annual Sediment Balance (I/RA/11283/06.117/MSA)

IMDC (2007n) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.2 Through tide measurement SiltProfiler 26/09/2006 Stream (I/RA/11283/06.068/MSA)

IMDC (2007o) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.7 Salt-Silt distribution & Frame Measurements Deurganckdok 15/07/2006 – 31/10/2006 (I/RA/11283/06.122/MSA)

IMDC (2007p) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.8 Salt-Silt distribution & Frame Measurements Deurganckdok 15/01/2007 – 15/03/2007 (I/RA/11283/06.123/MSA)

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APPENDIX A.

OVERVIEW OF THE HCBS2 REPORTS

Report	Description
Ambient Conditions Lower Sea Scheldt	
5.3	Overview of ambient conditions in the river Scheldt – January-June 2006 (I/RA/11291/06.088/MSA)
5.4	Overview of ambient conditions in the river Scheldt – July-December 2006 (I/RA/11291/06.089/MSA)
~~5.5~~	~~Overview of ambient conditions in the river Scheldt : RCM-9 buoy 84 & 97 (1/1/2007 -31/3/2007) (I/RA/11291/06.090/MSA)~~*
5.6	Analysis of ambient conditions 21/09/05 - 31/3/2007 (I/RA/11291/06.091/MSA)
Calibration	
6.1	Winter Calibration (I/RA/11291/06.092/MSA)
6.2	Summer Calibration and Final Report (I/RA/11291/06.093/MSA)
Through tide Measurements Winter 2006	
7.1	21/3 Scheldewacht – Deurganckdok – Salinity Distribution (I/RA/11291/06.094/MSA)
7.2	22/3 Parel 2 – Deurganckdok (I/RA/11291/06.095/MSA)
7.3	22/3 Laure Marie – Liefkenshoek (I/RA/11291/06.096/MSA)
7.4	23/3 Parel 2 – Schelle (I/RA/11291/06.097/MSA)
7.5	23/3 Laure Marie – Deurganckdok (I/RA/11291/06.098/MSA)
7.6	23/3 Veremans Waarde (I/RA/11291/06.099/MSA)
HCBS Near bed continuous monitoring (Frames)	
8.1	Near bed continuous monitoring winter 2006 (I/RA/11291/06.100/MSA)
INSSEV	
9	Settling Velocity - INSSEV summer 2006 (I/RA/11291/06.102/MSA)
Cohesive Sediment	
10	Cohesive sediment properties summer 2006 (I/RA/11291/06.103/MSA)
Through tide Measurements Summer 2006	
11.1	Through Tide Measurement Sediview and Siltprofiler 27/9 Stream - Liefkenshoek (I/RA/11291/06.104/MSA)
11.2	Through Tide Measurement Sediview 27/9 Veremans - Raai K (I/RA/11291/06.105/MSA)
11.3	Through Tide Measurement Sediview and Siltprofiler 28/9 Stream - Raai K (I/RA/11291/06.106/MSA)
11.4	Through Tide Measurement Sediview 28/9 Veremans – Waarde (I/RA/11291/06.107/MSA)
11.5	Through Tide Measurements Sediview 28/9 Parel 2 - Schelle (I/RA/11291/06.108/MSA)
11.6	Through Tide measurement Longitudinal Salinity Distribution 26/9 Scheldewacht

	– Deurganckdok (I/RA/11291/06.161/MSA)
Analysis	
12	Report concerning the presence of HCBS layers in the Scheldt river (I/RA/11291/06.109/MSA)

* The data, foreseen for Report 5.5 is reported in report 3.1. Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA) including HCBS 2 report 5.5 (Deurganckdok)..

APPENDIX B.

LONG TERM MEASUREMENTS

HCBS2 MEASUREMENT CAMPAIGN

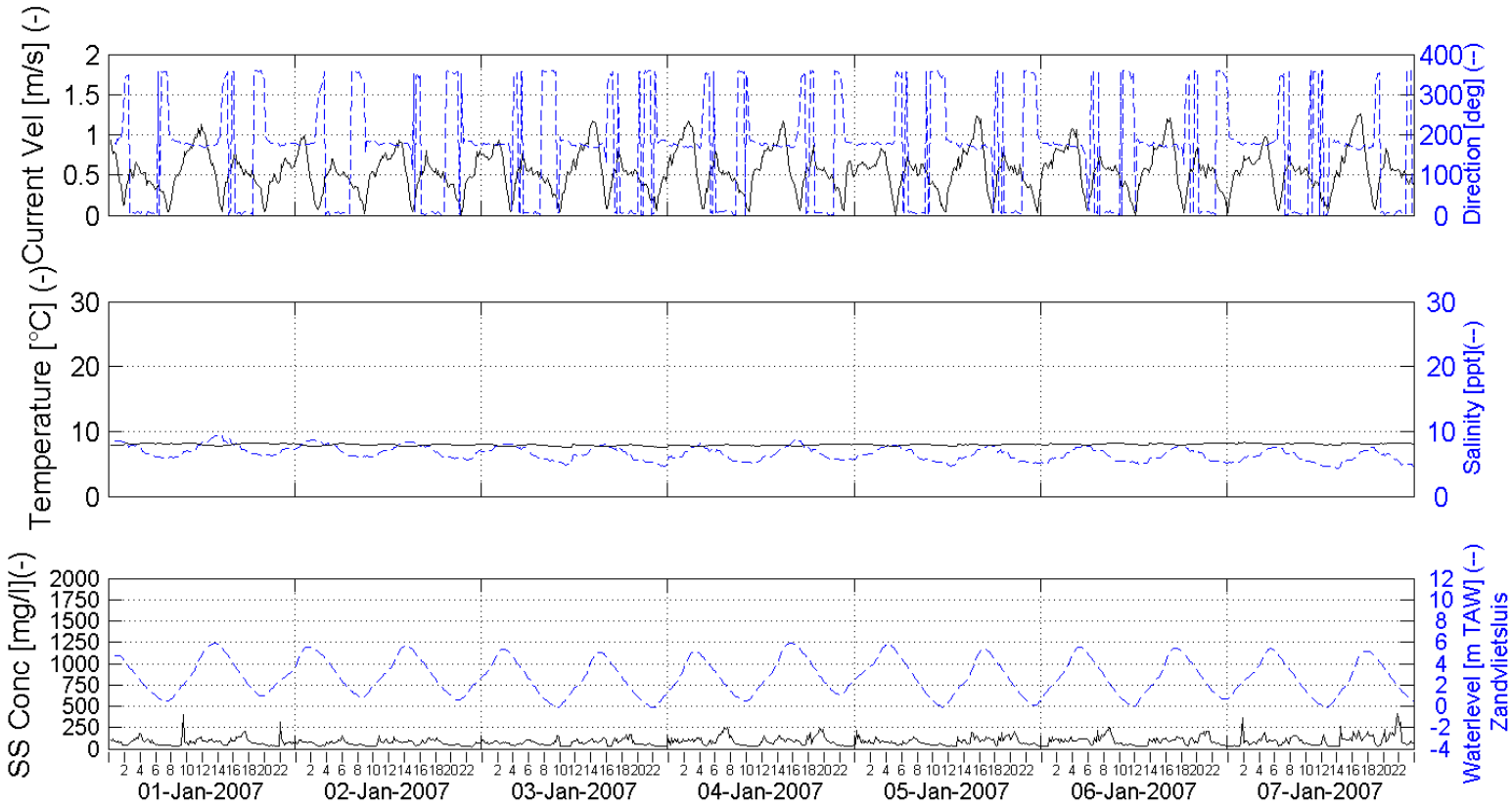
B.1 Datasheets weekseries

Datasheet order

Nr	*Location*	Depth of Instrument		*Sensor*	*Period*
		[m] above bottom	*[m TAW]*		
1	**Buoy 84**	**3.3**	**-5.6**	**Aanderaa 1225**	**01/01/2007 – 31/03/2007**
2	**Buoy 84**	**0.8**	**-8.1**	**Aanderaa 1229**	**01/01/2007 – 31/03/2007**
3	**Buoy 97**	**3.3**	**-5.3**	**Aanderaa 1164**	**01/01/2007 – 21/03/2007**
				Aanderaa 1170	**21/03/2007 – 31/03/2007**
4	**Buoy 97**	**0.8**	**-7.8**	**Aanderaa 1220**	**01/01/2007 – 31/03/2007**

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 1 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

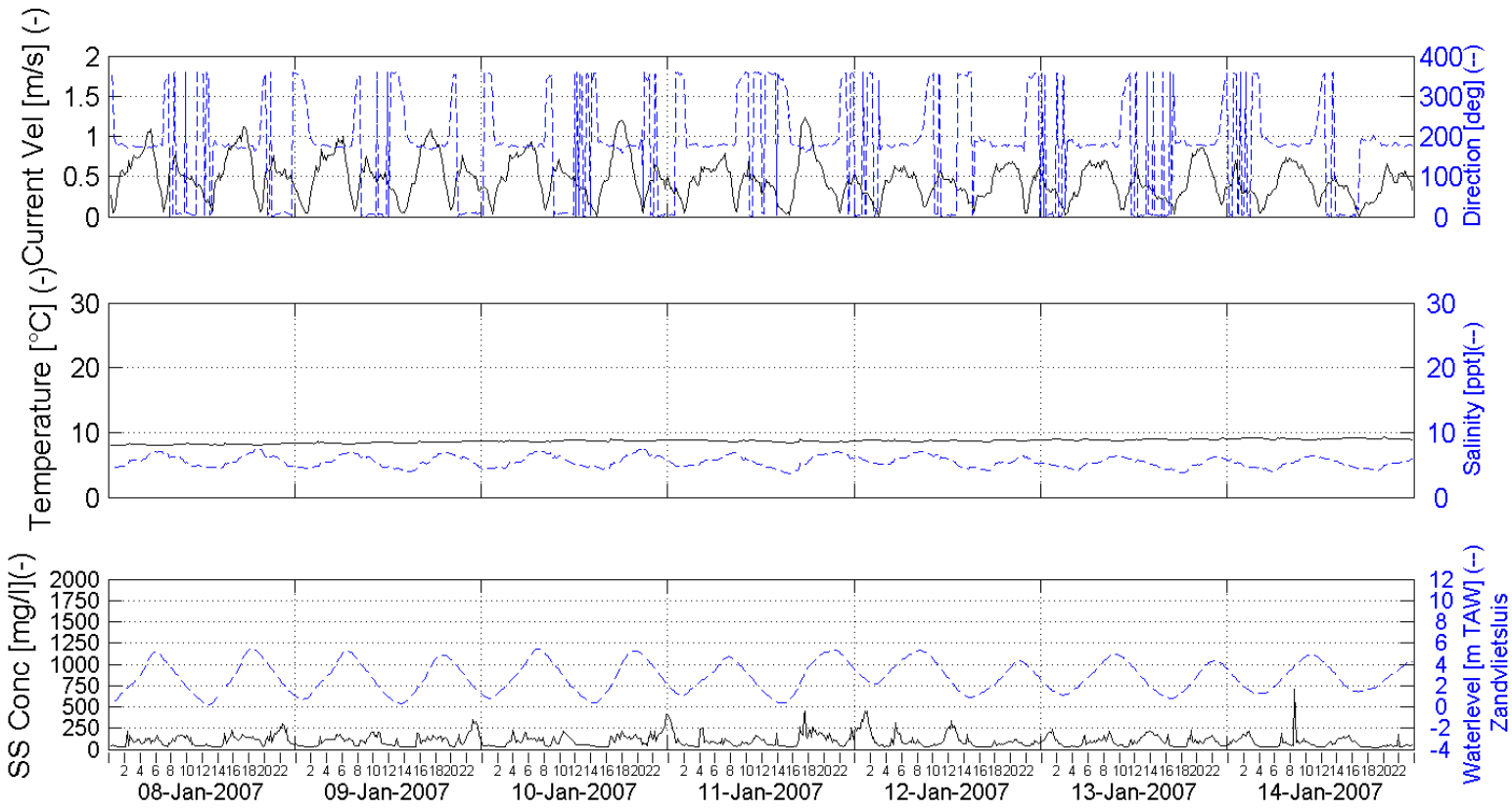
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 2 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

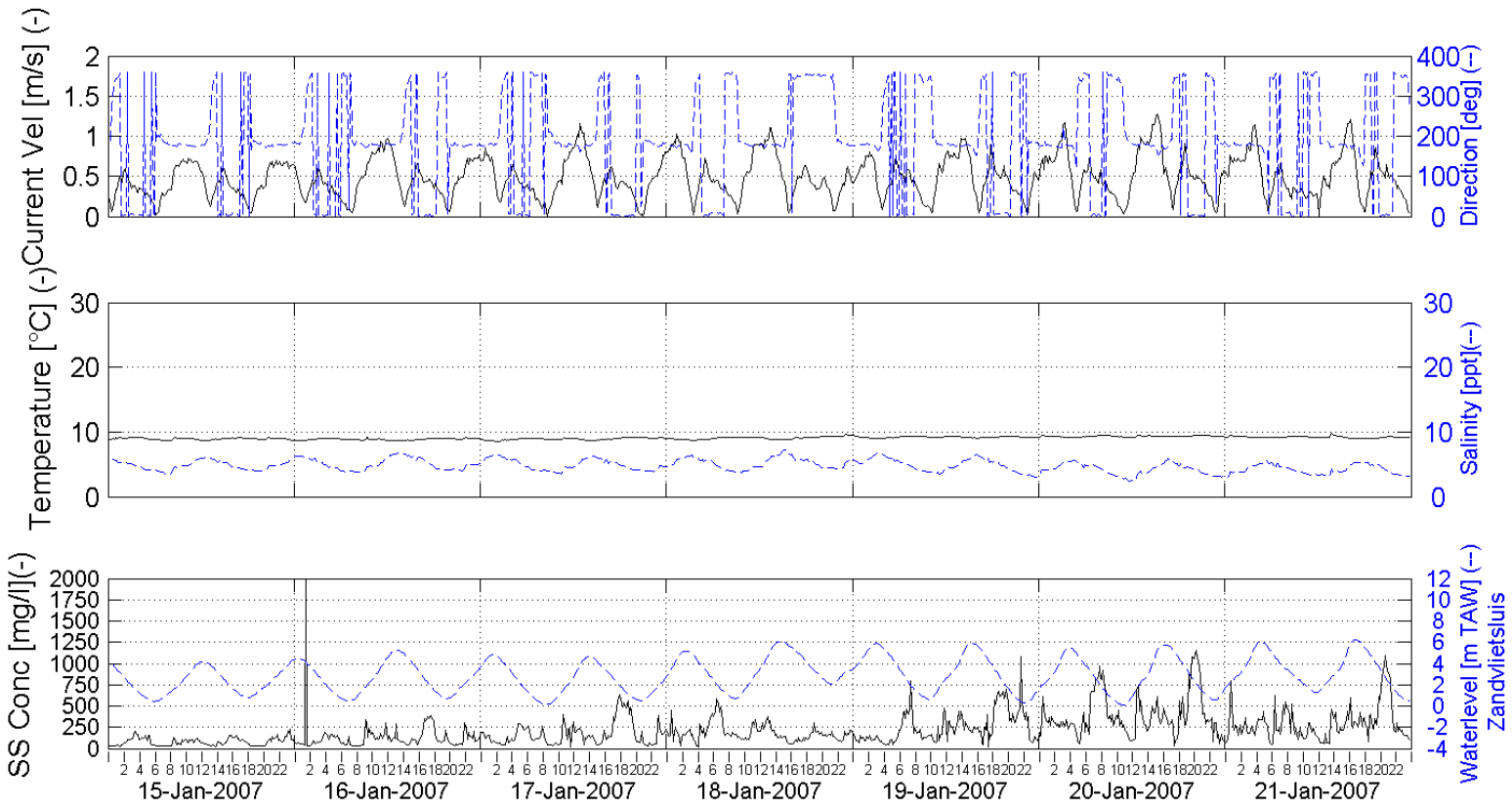
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 3 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

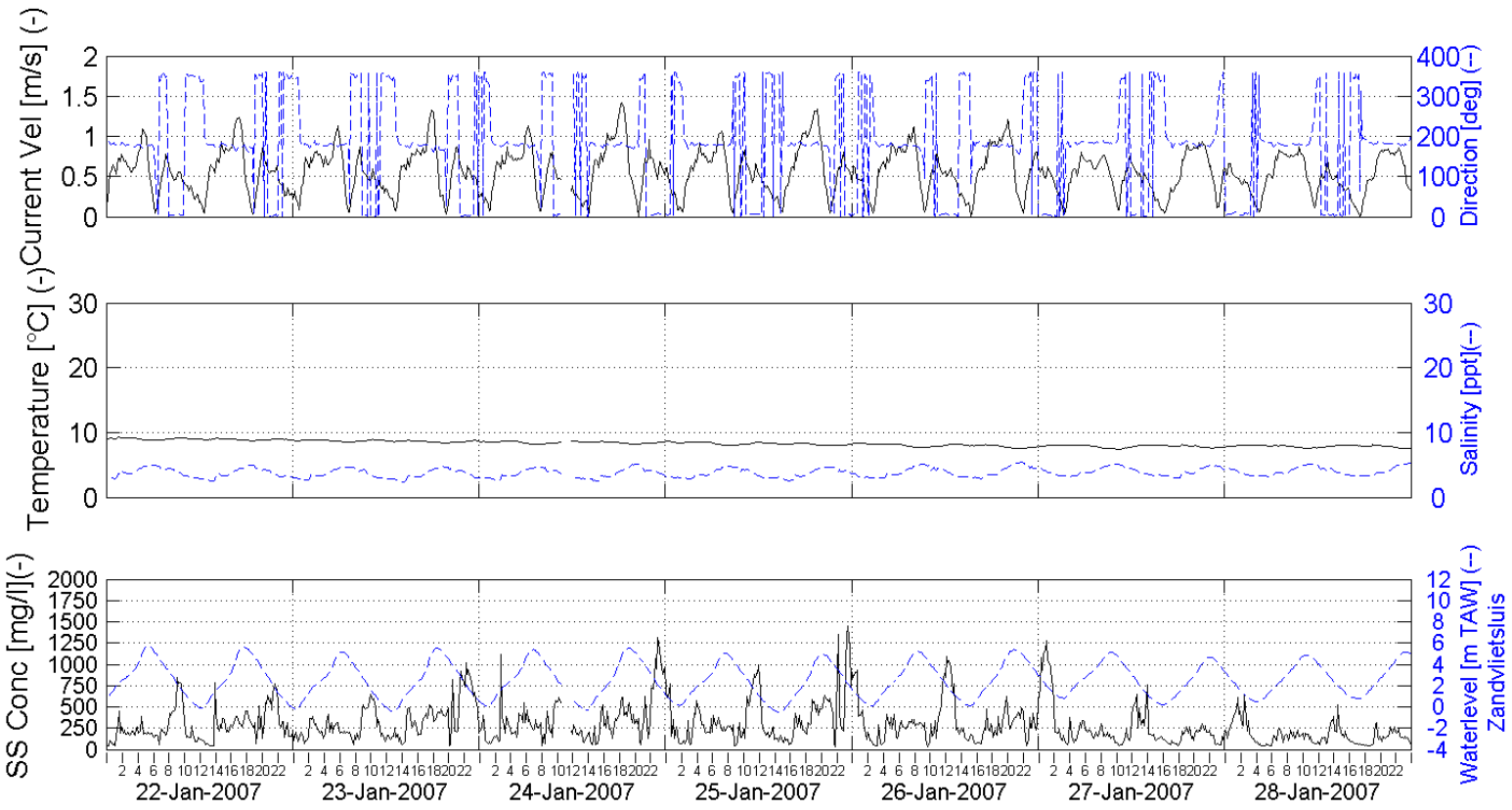
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 4 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

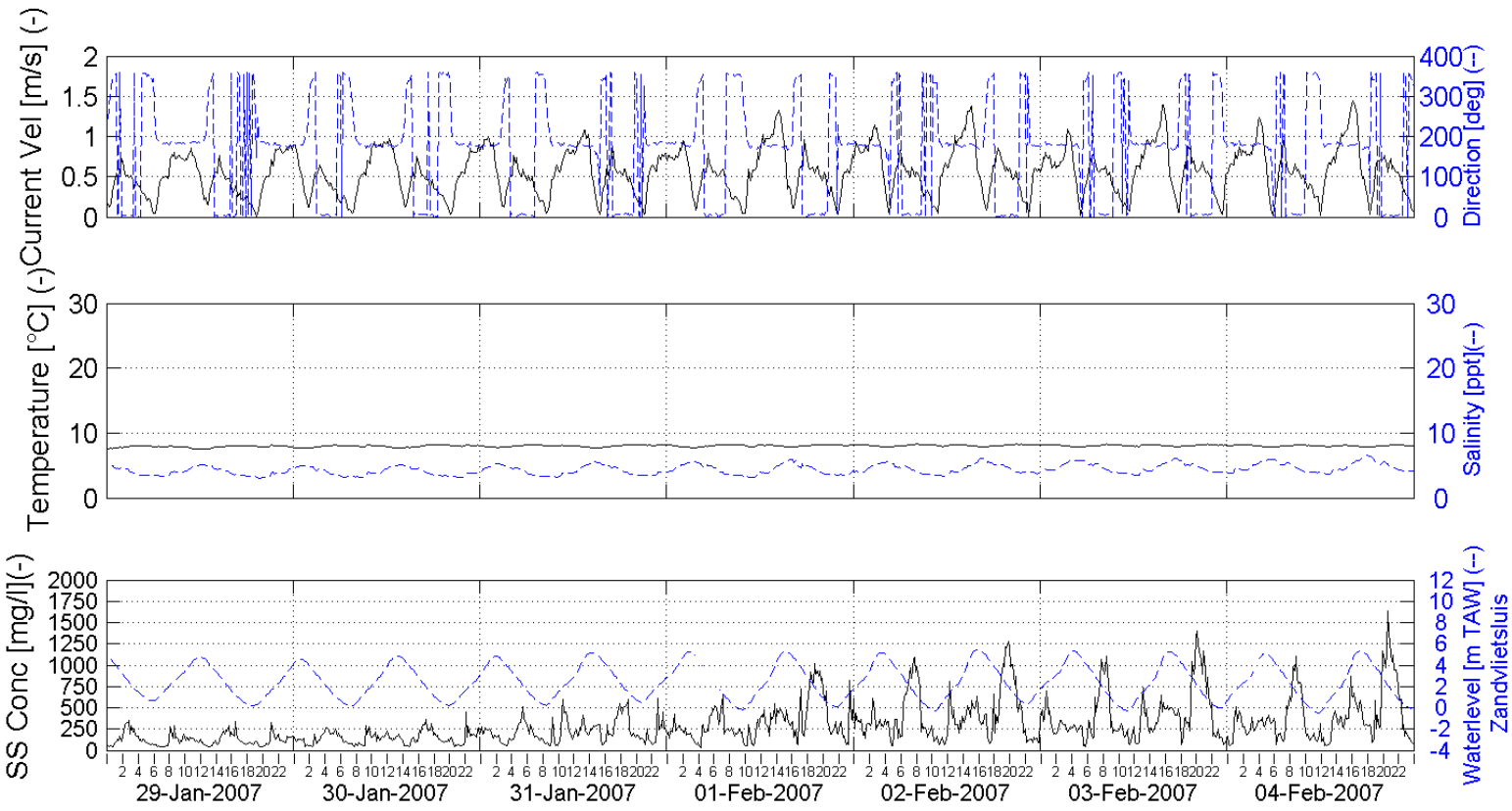
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 5 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

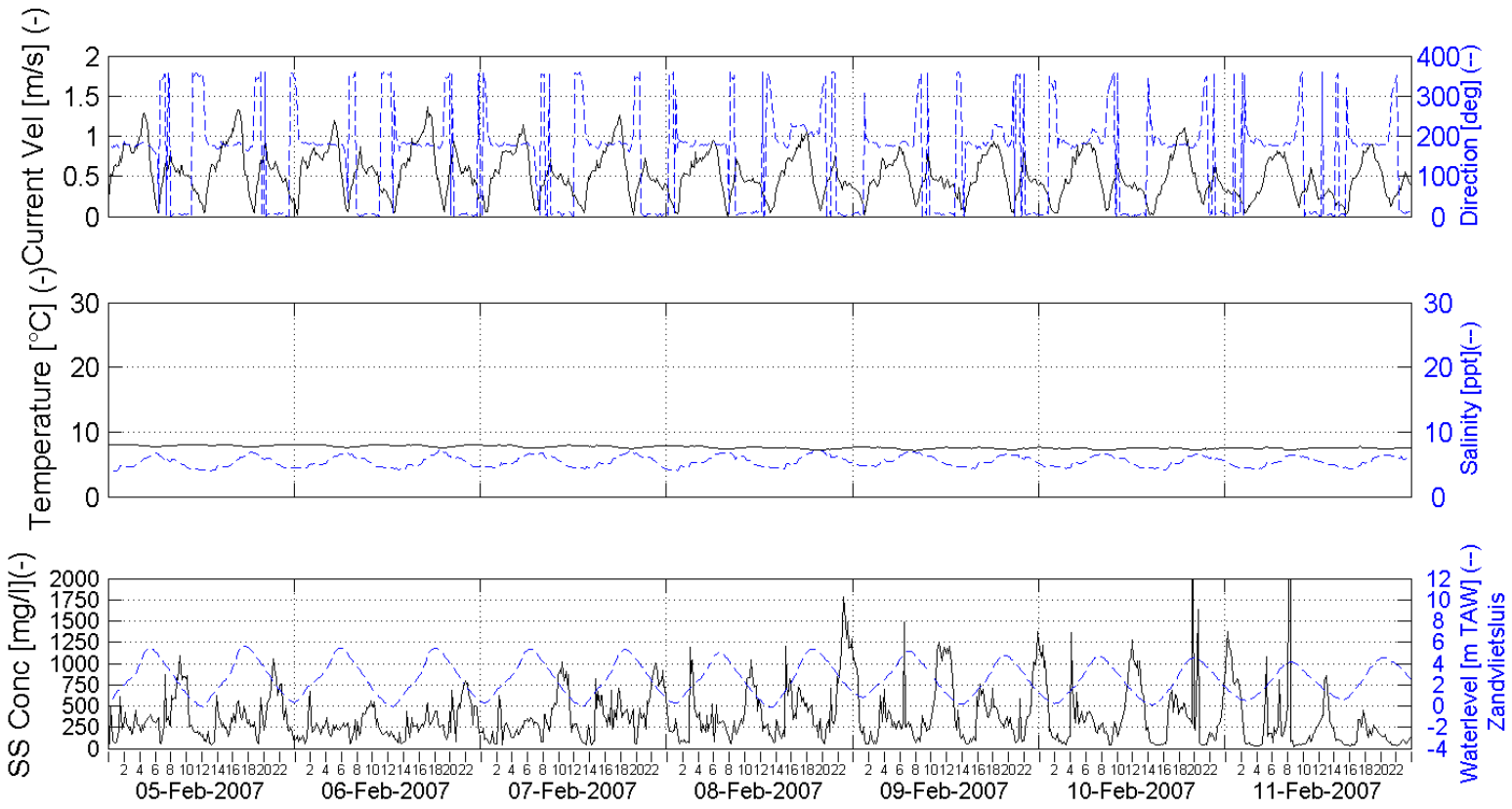
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 6 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

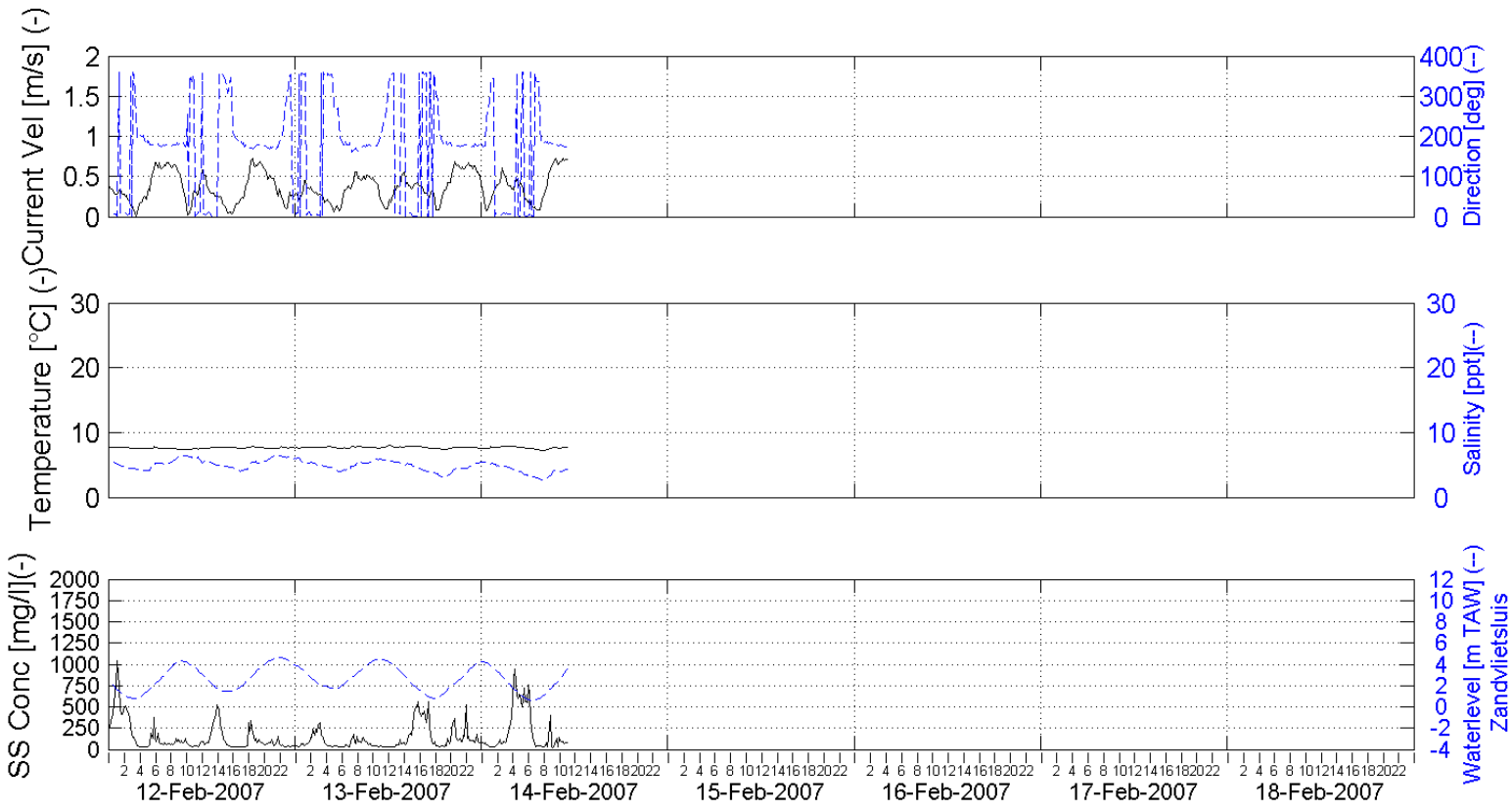
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 7 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

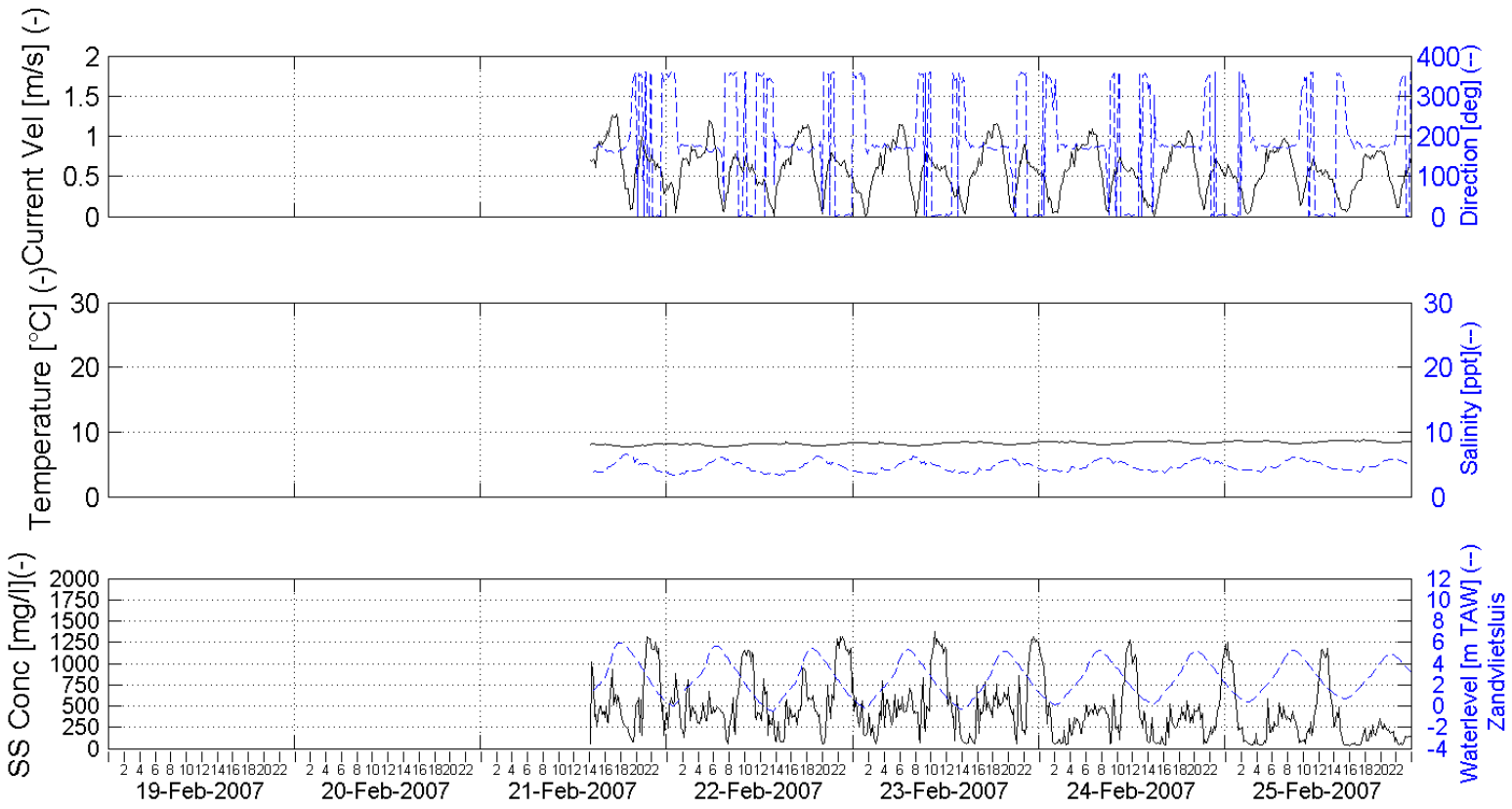
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 8 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

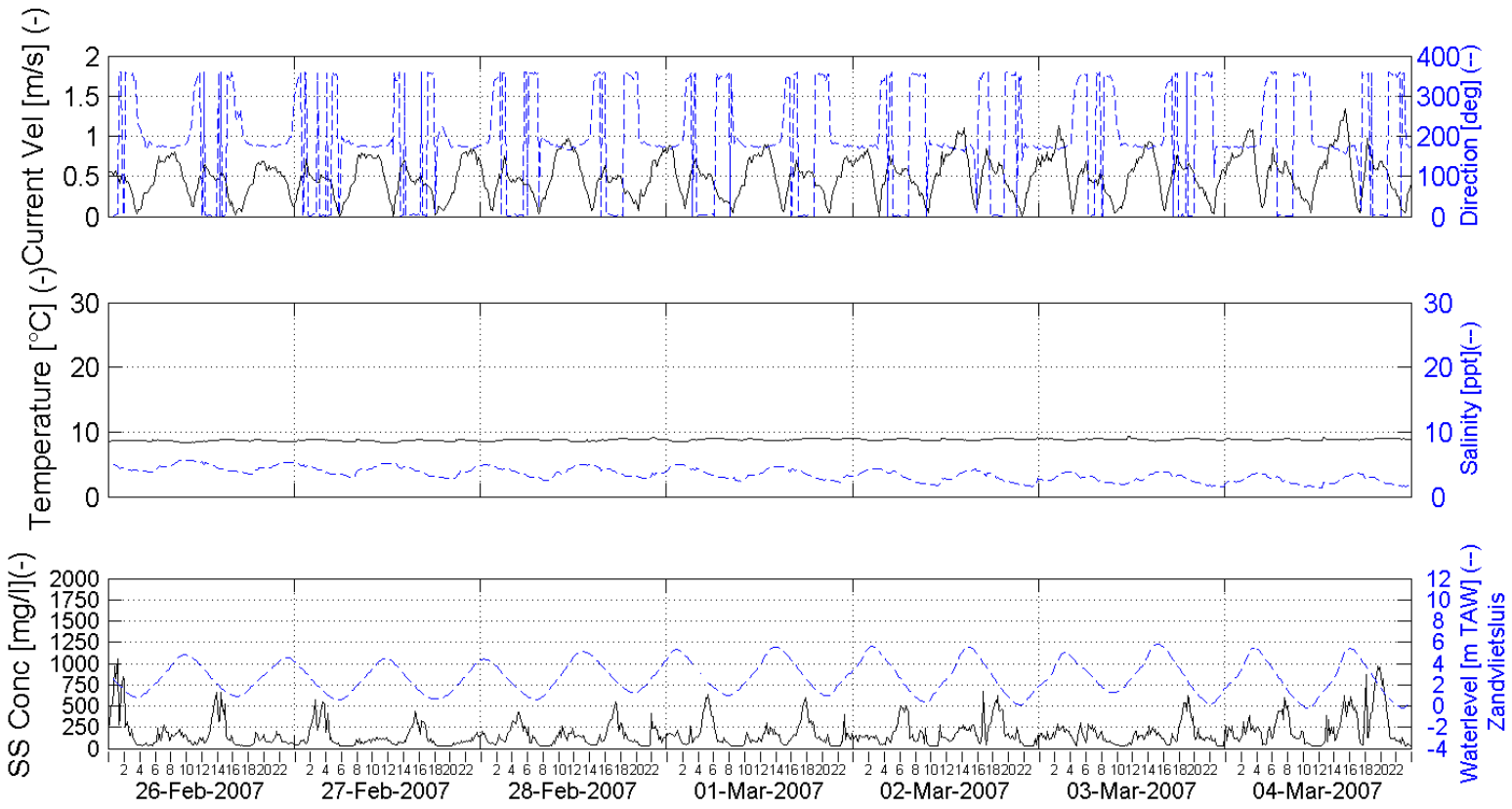
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 9 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

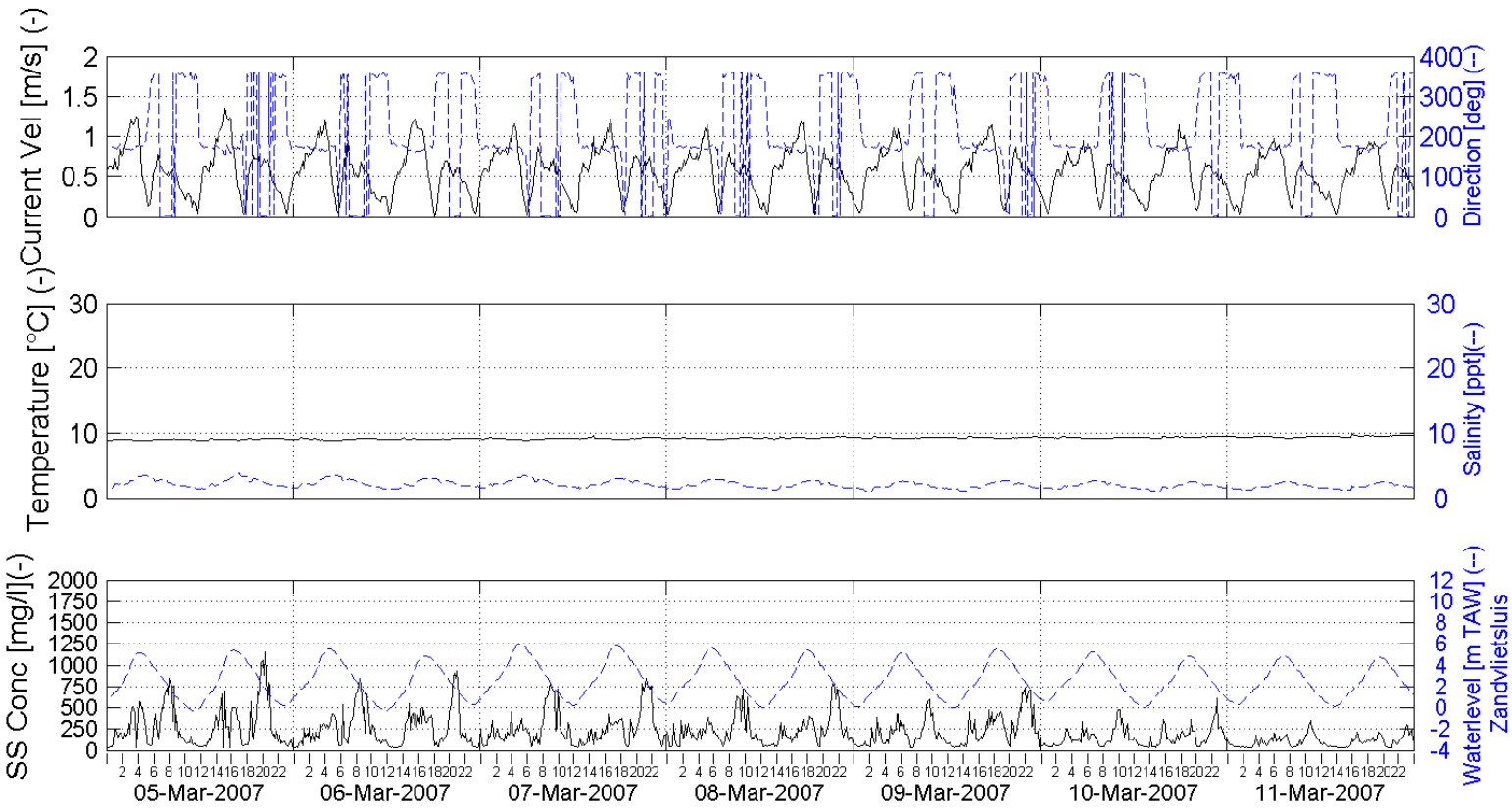
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 10 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

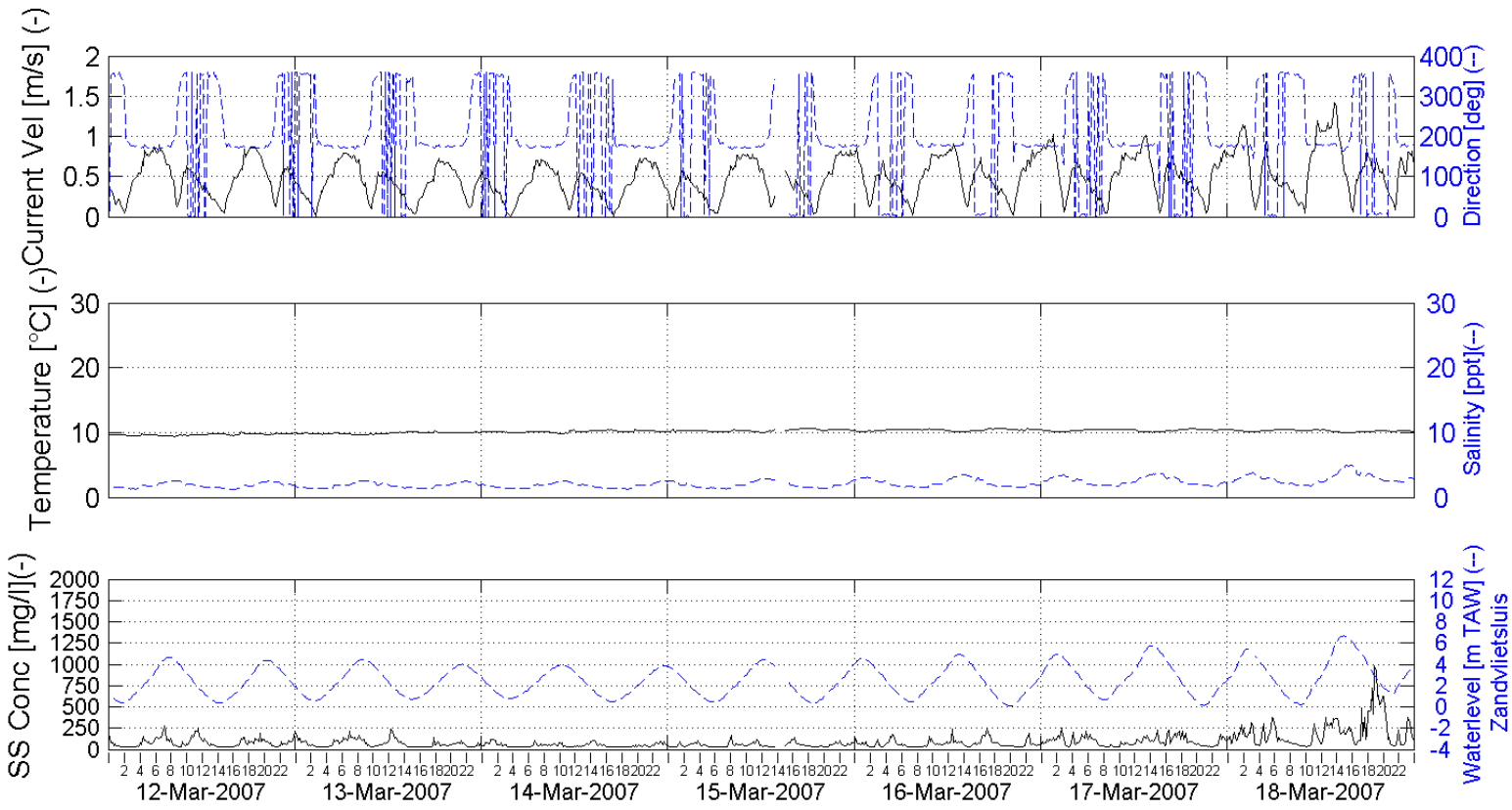
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 11 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

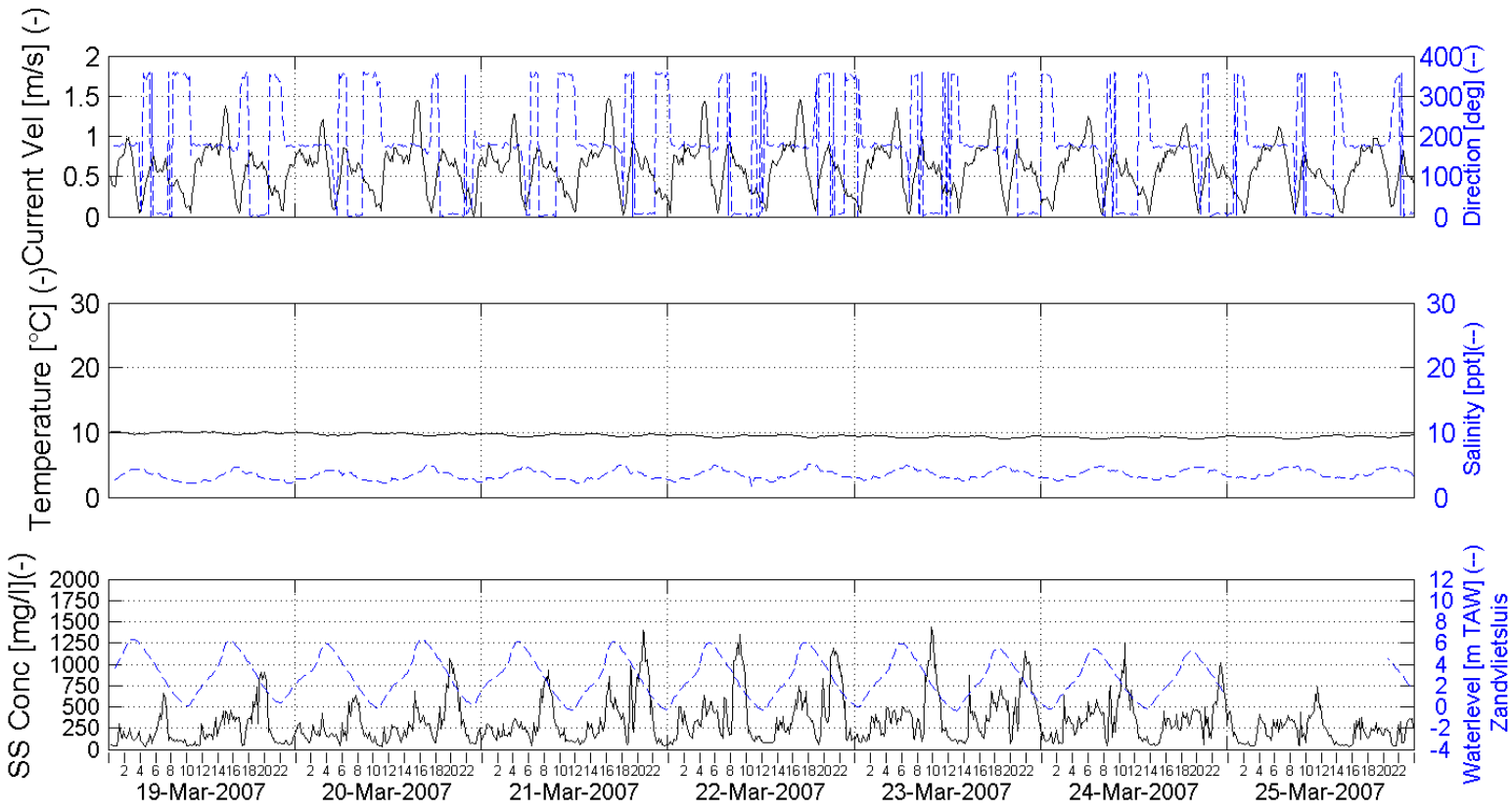
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 12 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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Processed by:

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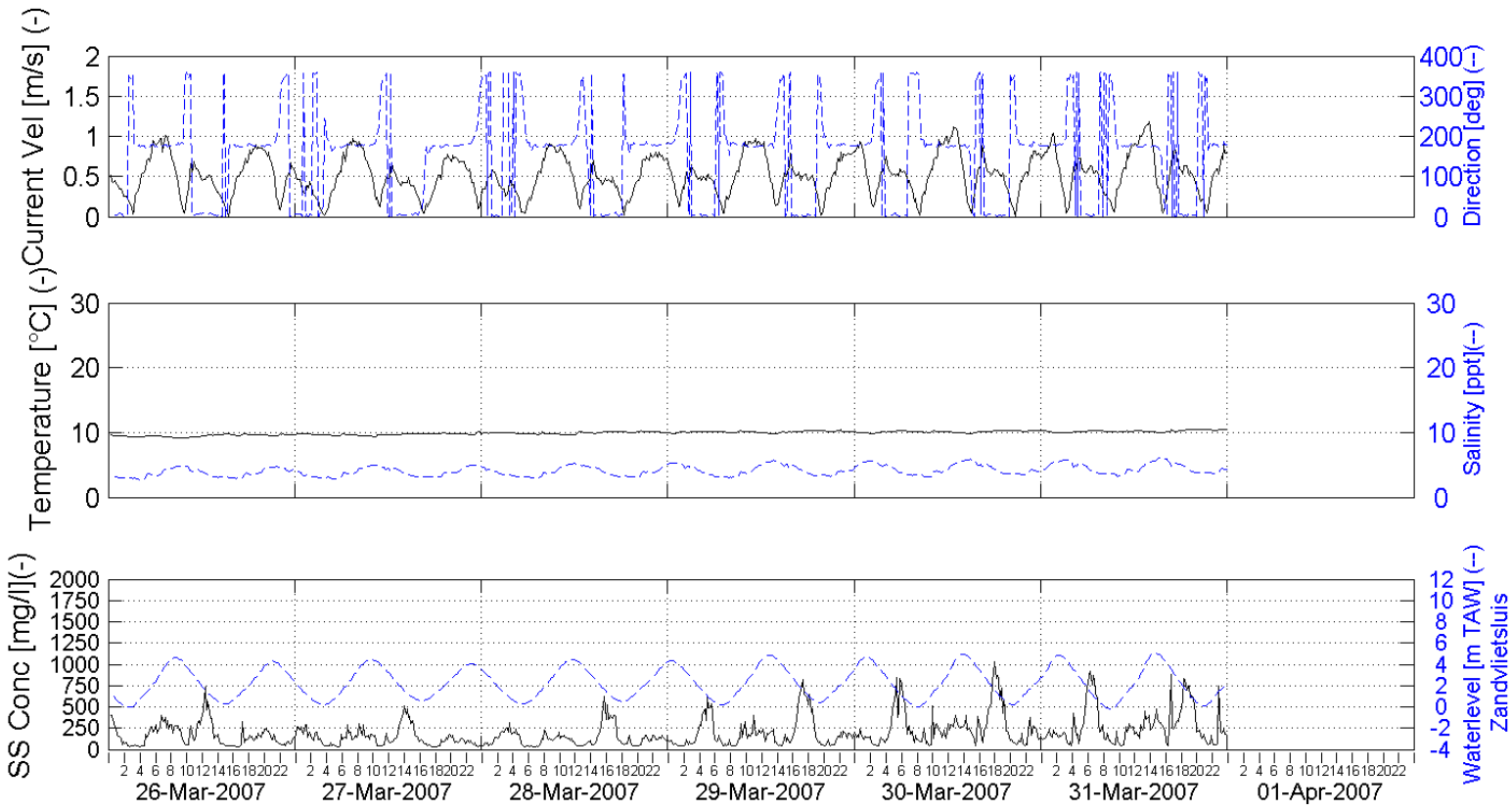
In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 13 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 top - 3.3m above bottom (-5.6m TAW)

Processed by:

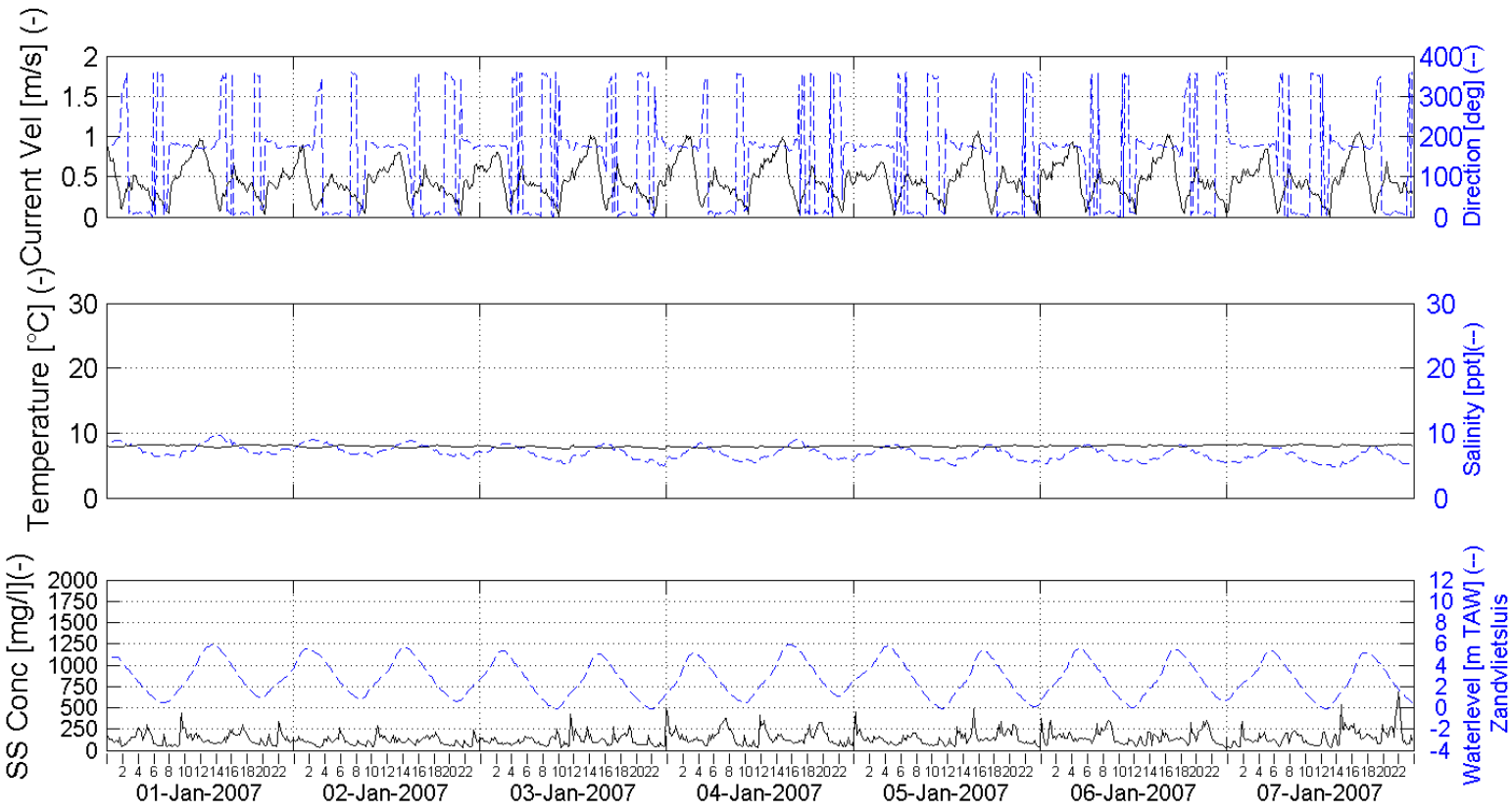
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 1 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 bottom - 0.8m above bottom (-8.1m TAW)

Processed by:

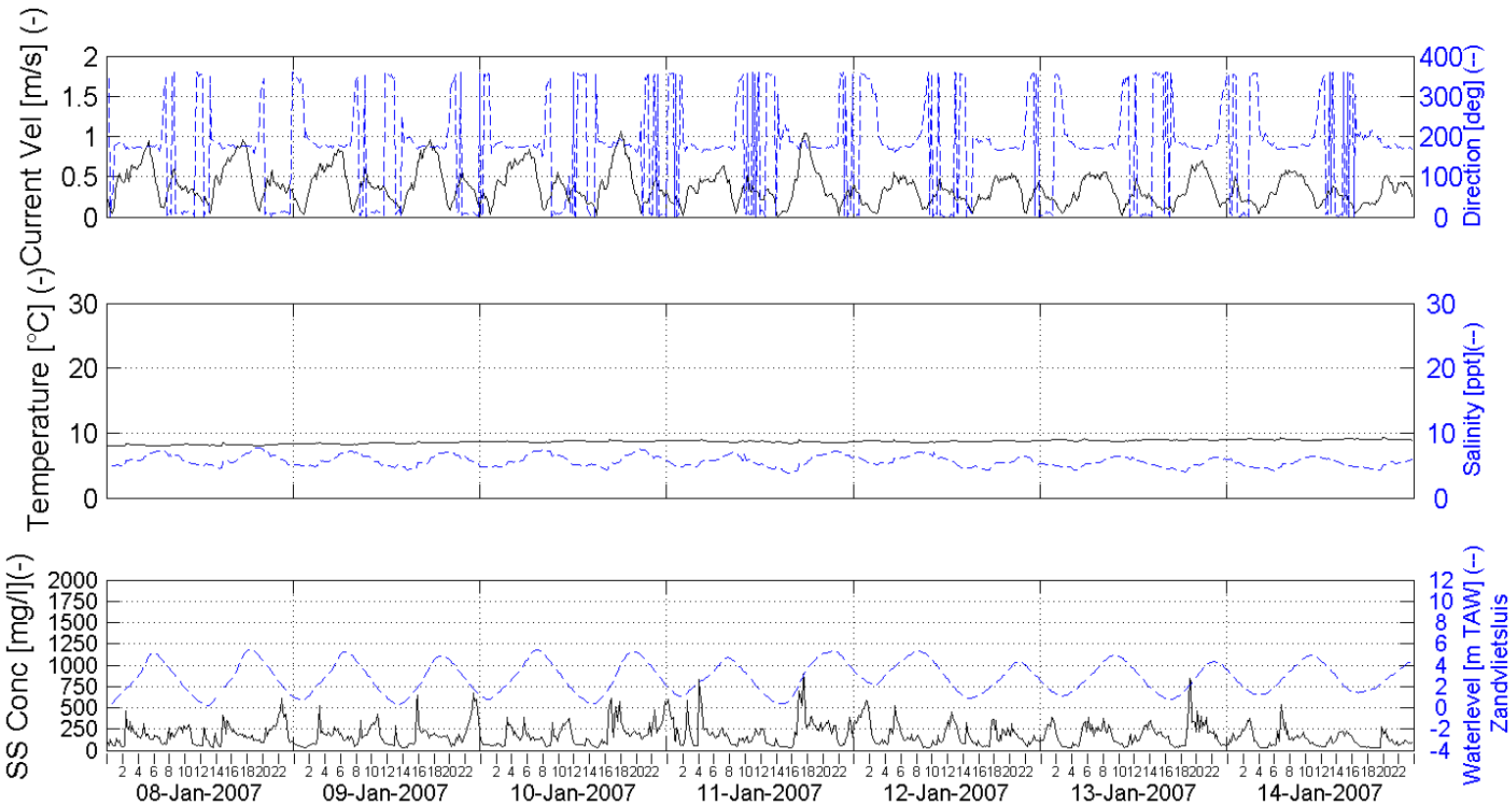
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 2 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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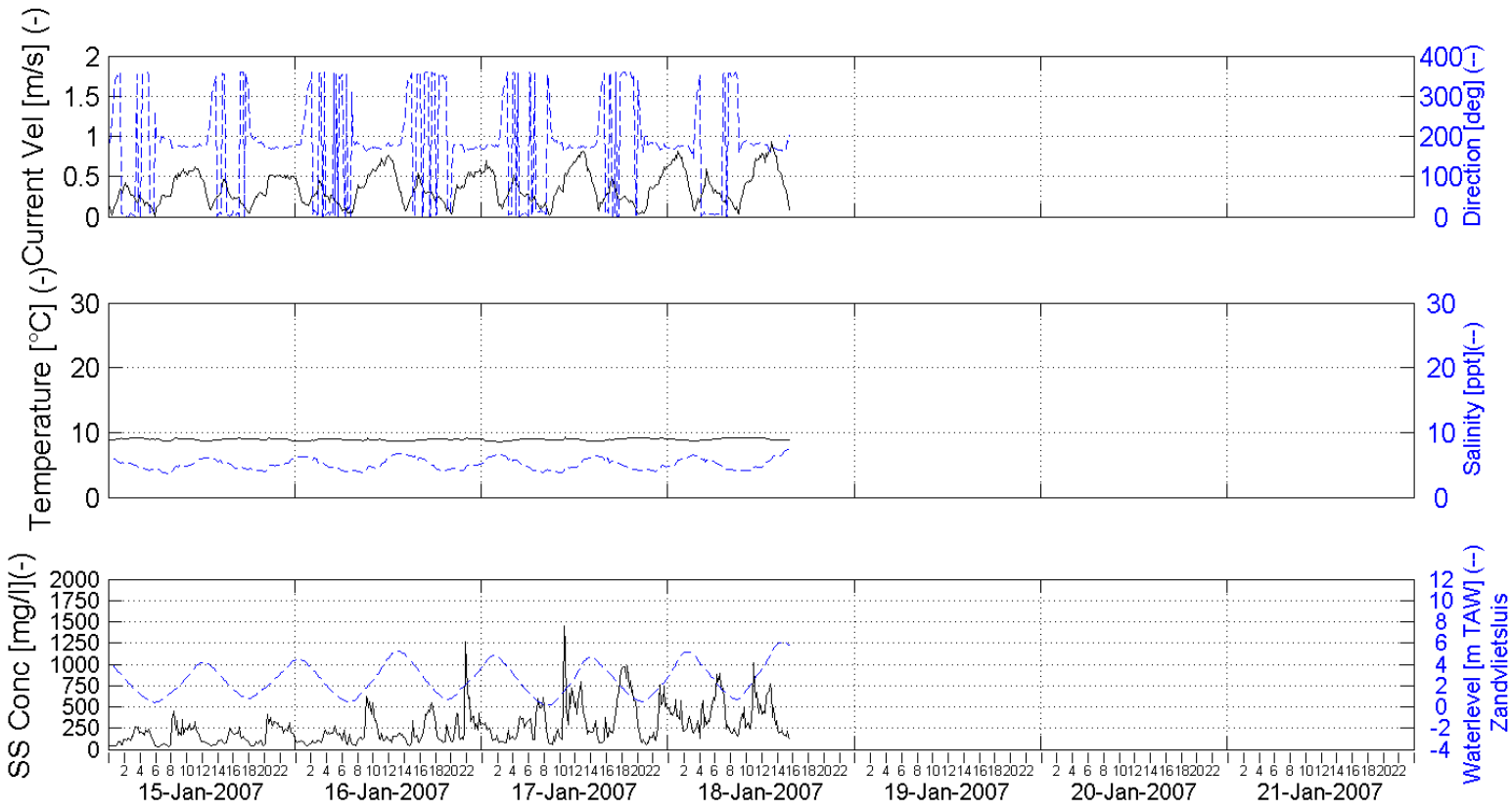
I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 3 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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Buoy 84 bottom - 0.8m above bottom (-8.1m TAW)

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In Association with:

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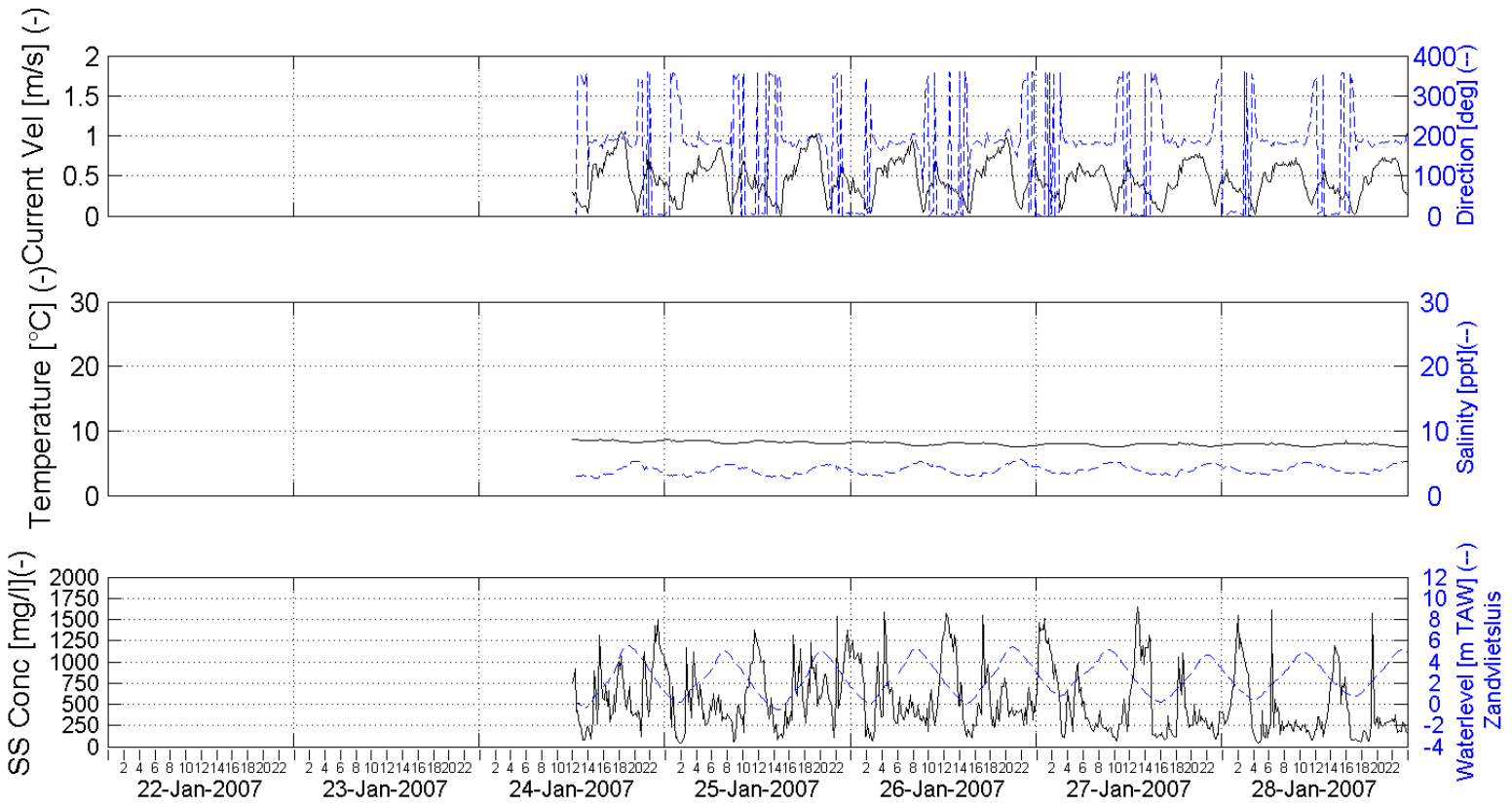
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 4 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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IMDC

In Association with:

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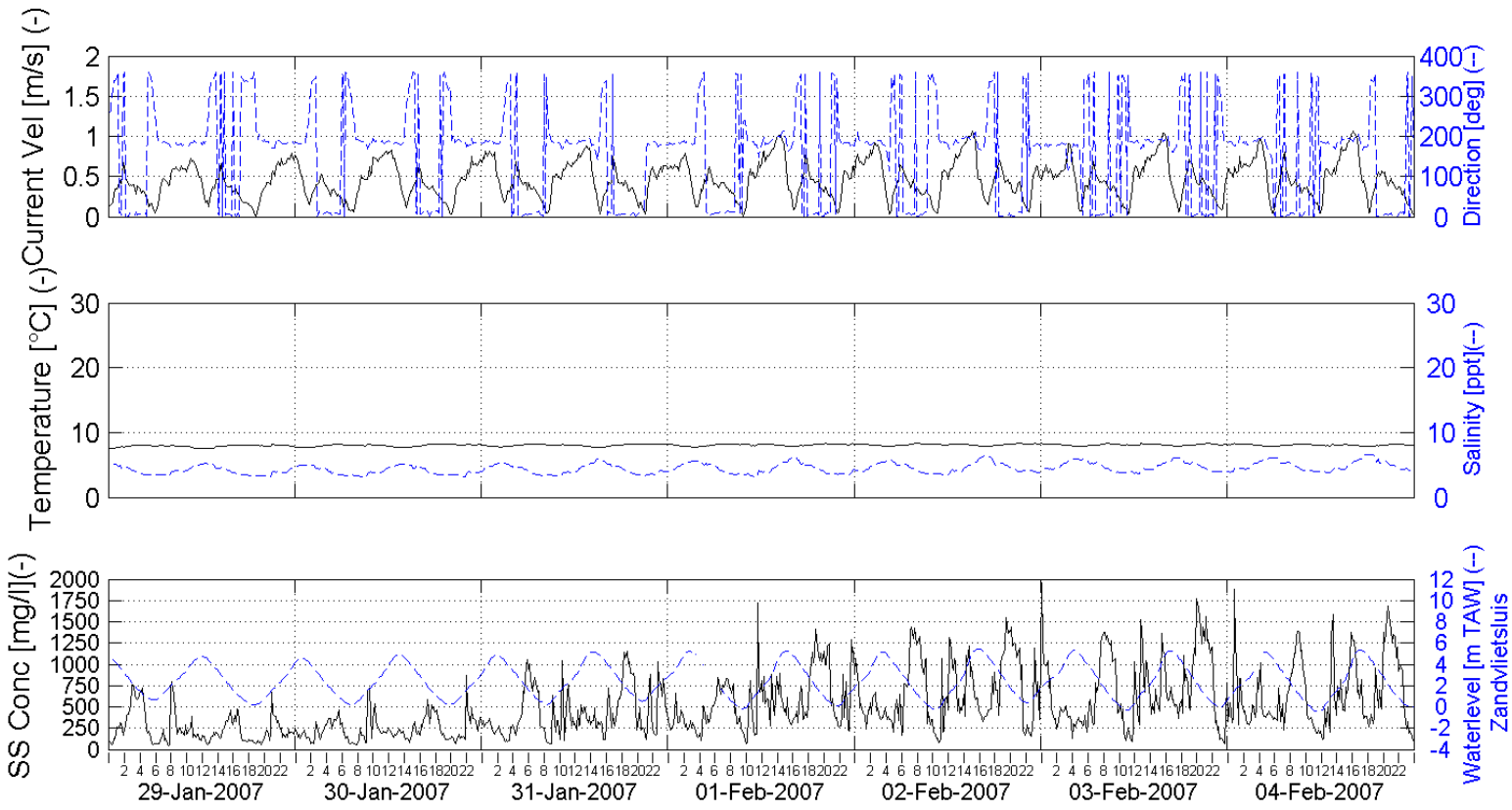
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 5 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 bottom - 0.8m above bottom (-8.1m TAW)

Processed by:

IMDC

In Association with:

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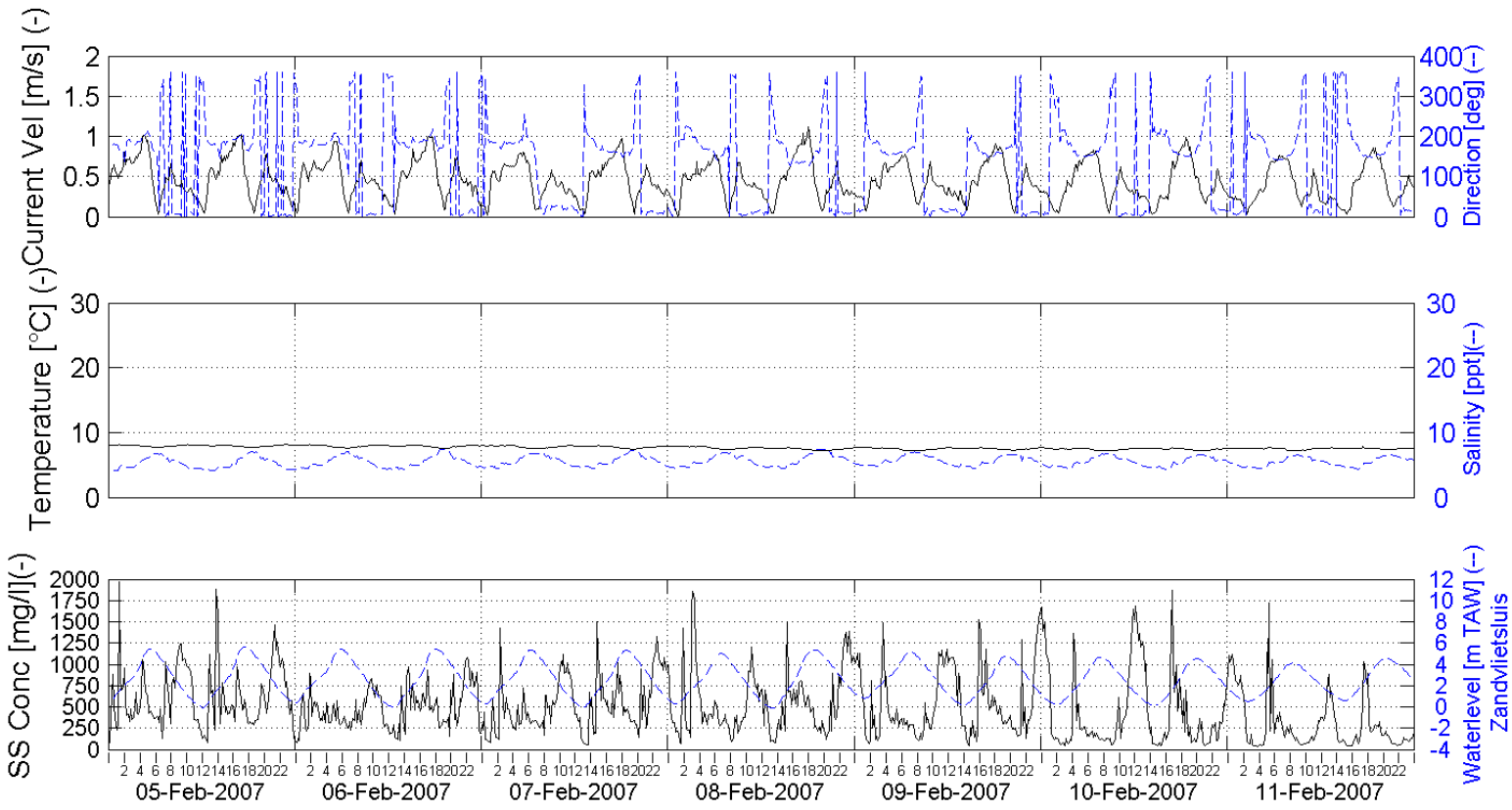
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 6 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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In Association with:

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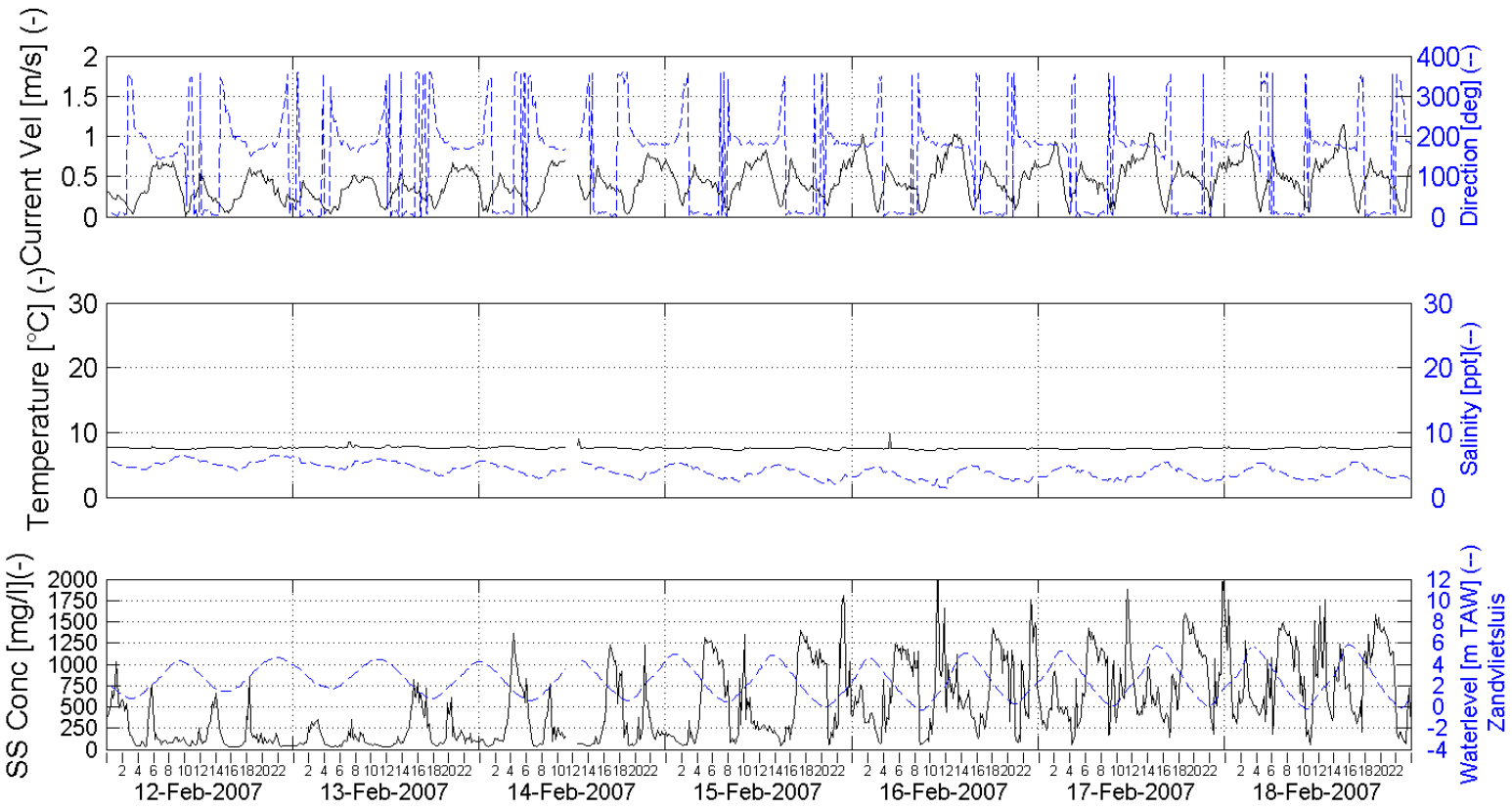
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 7 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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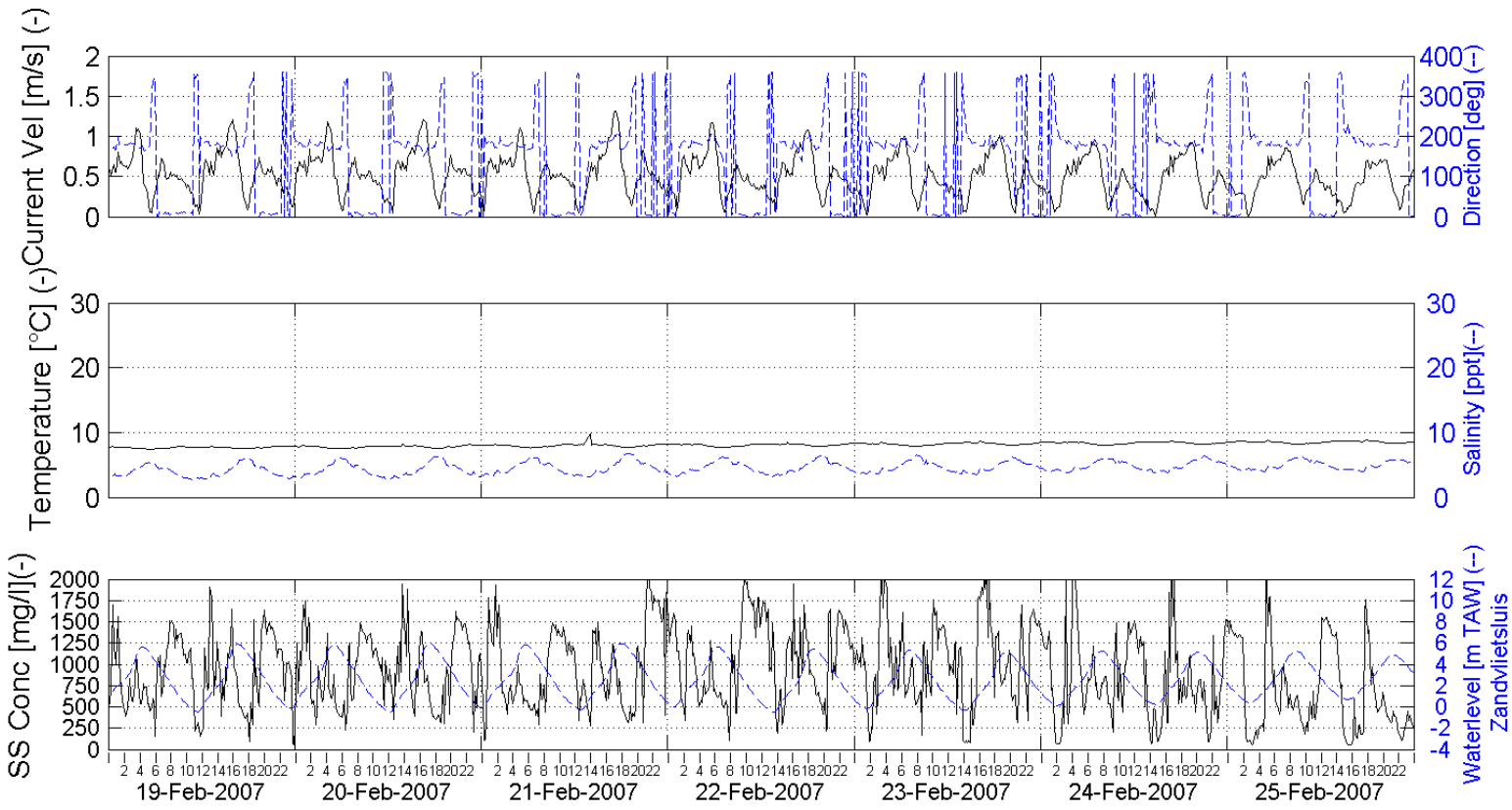
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 8 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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In Association with:

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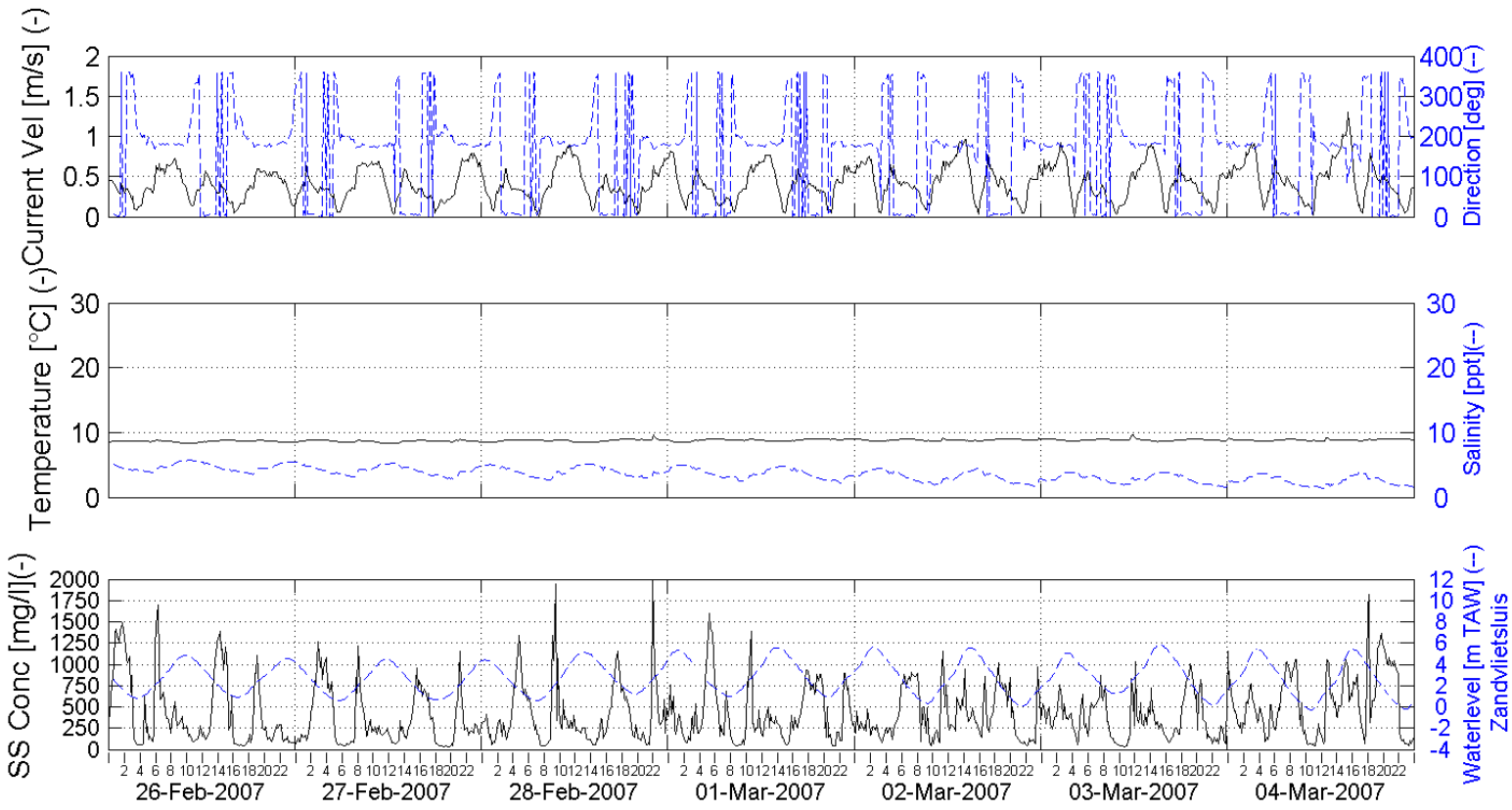
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 9 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 bottom - 0.8m above bottom (-8.1m TAW)

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IMDC

In Association with:

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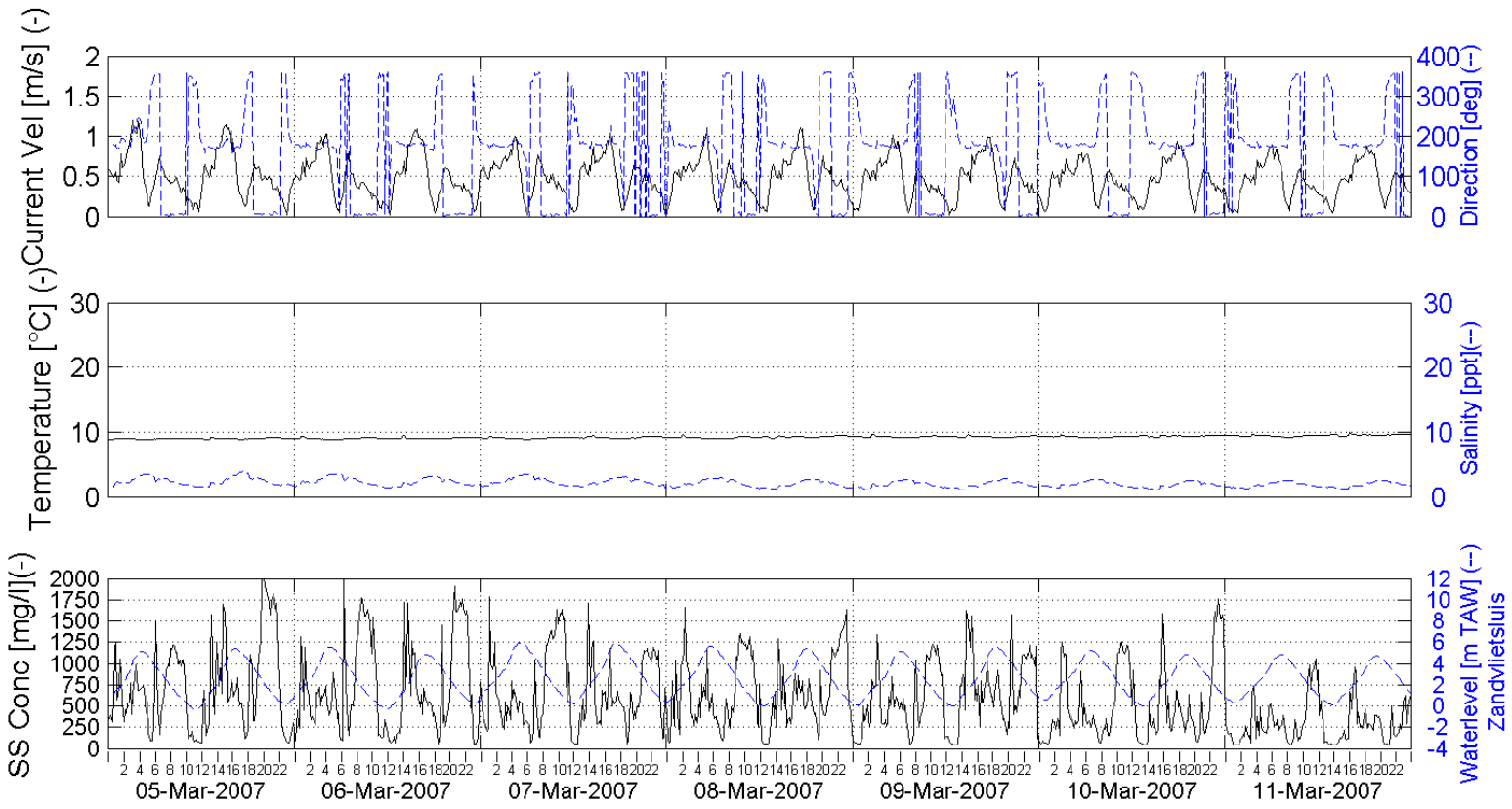
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 10 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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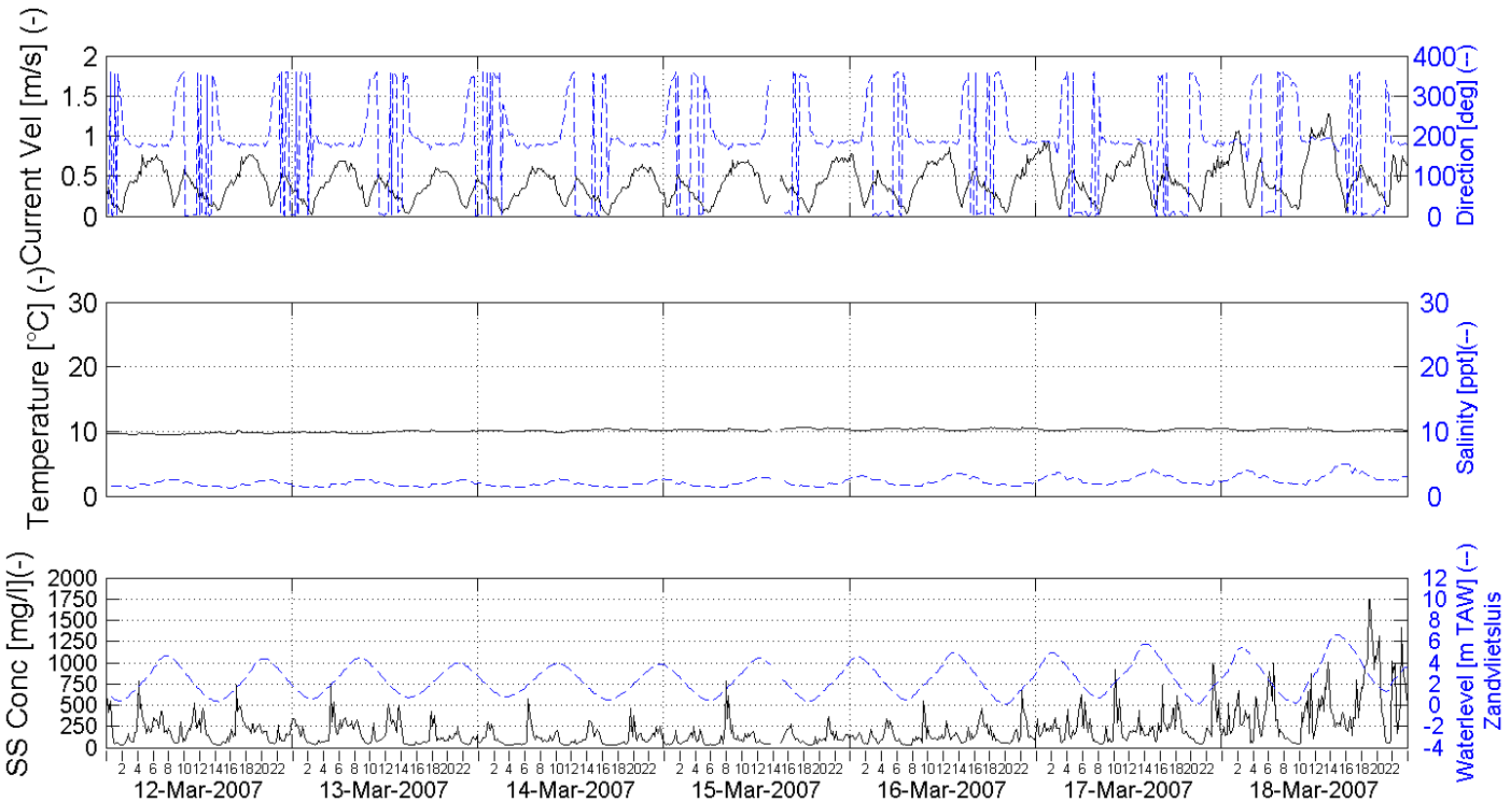
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 11 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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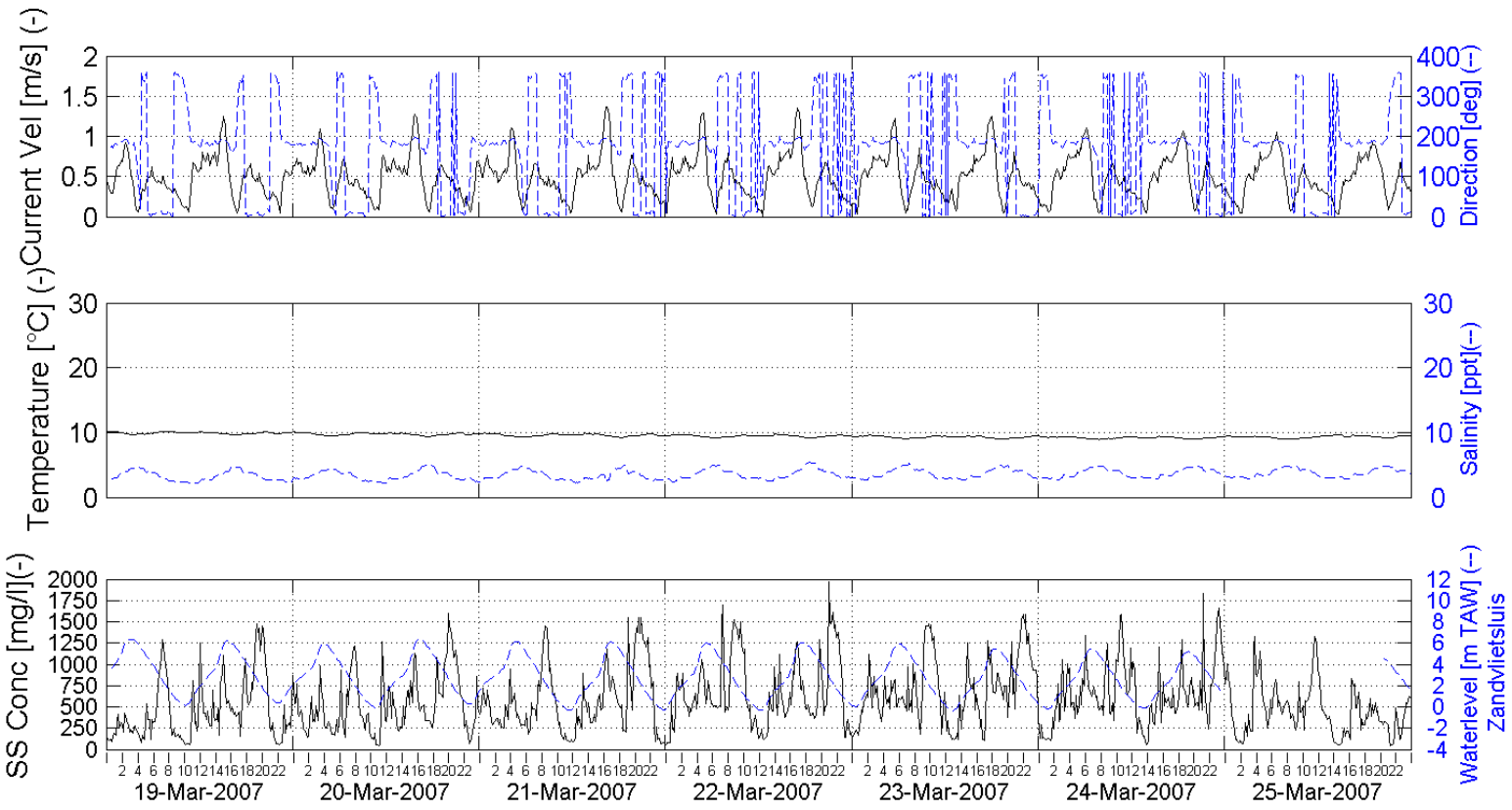
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 12 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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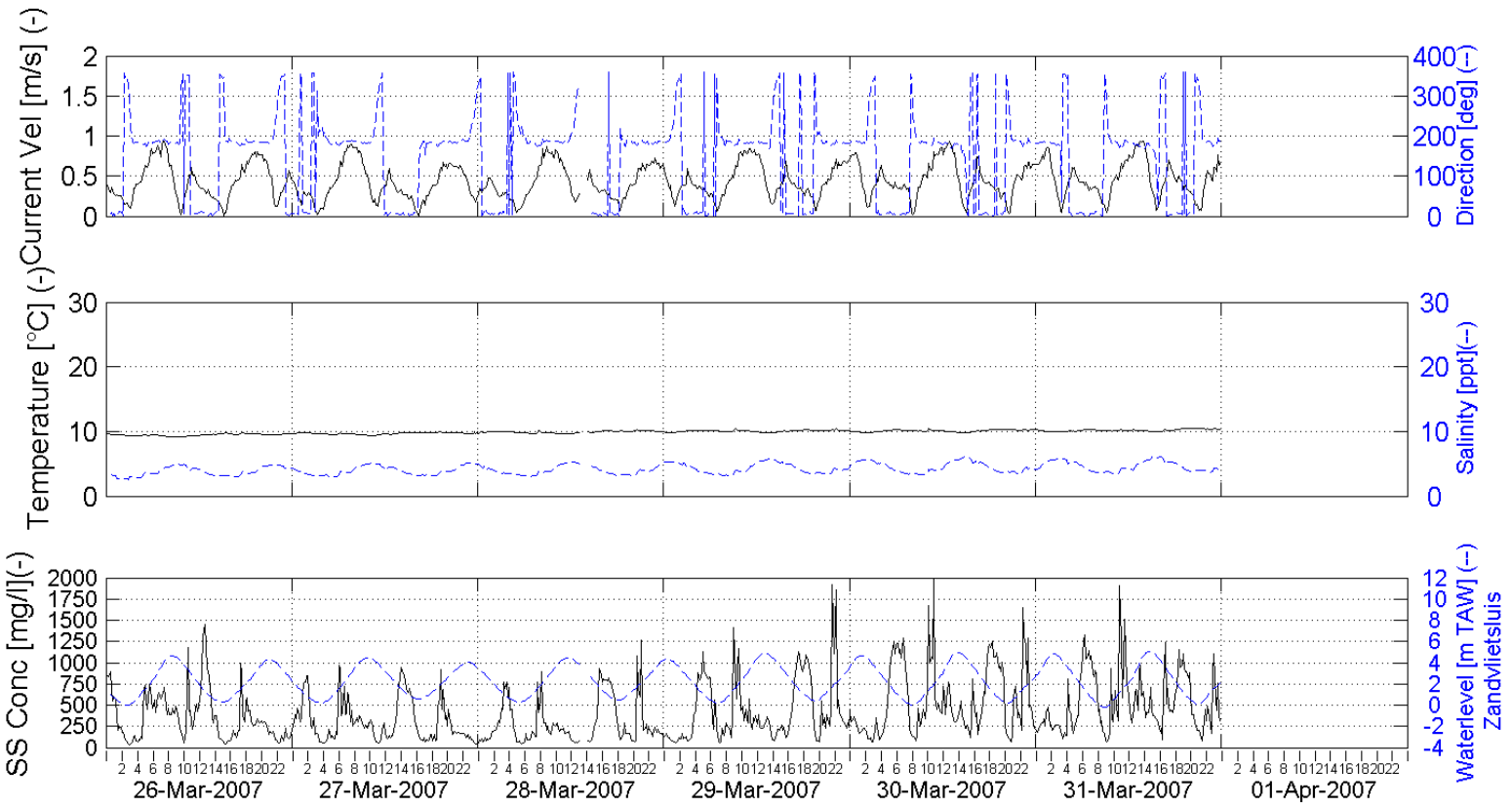
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 13 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 84 bottom - 0.8m above bottom (-8.1m TAW)

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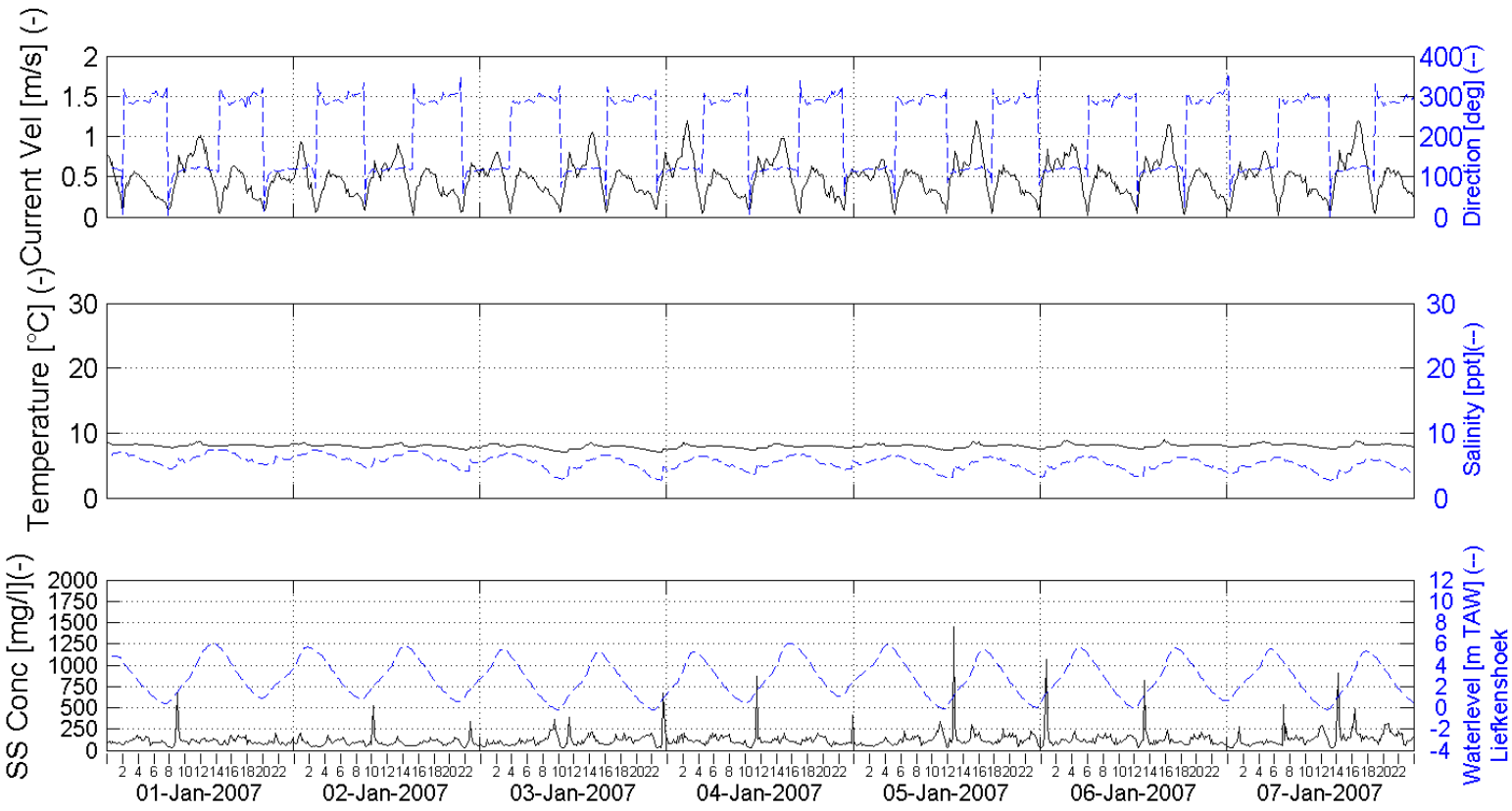
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 1 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 97 top - 3.3m above bottom (-5.3m TAW)

Processed by:

IMDC

In Association with:

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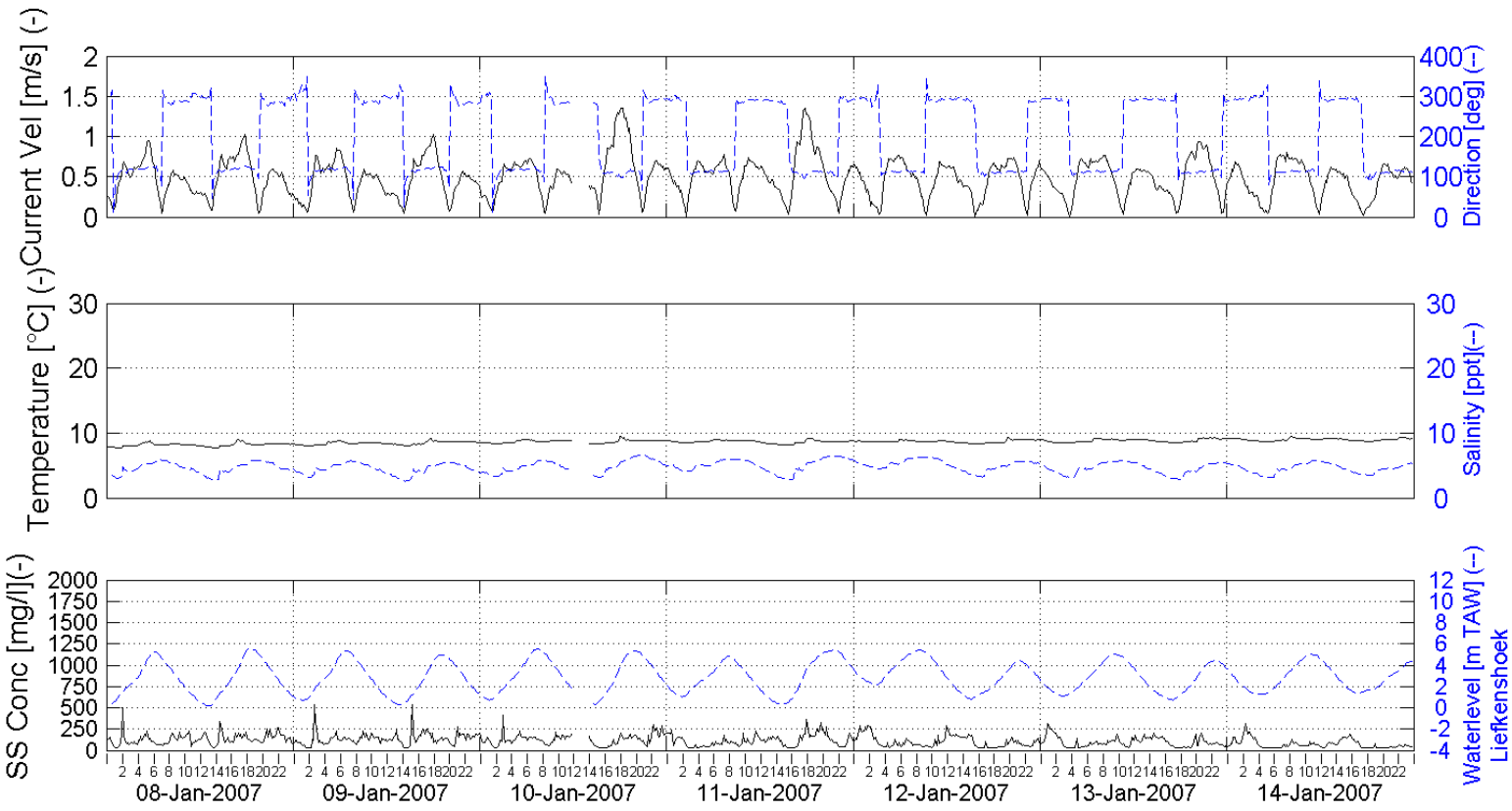
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 2 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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IMDC

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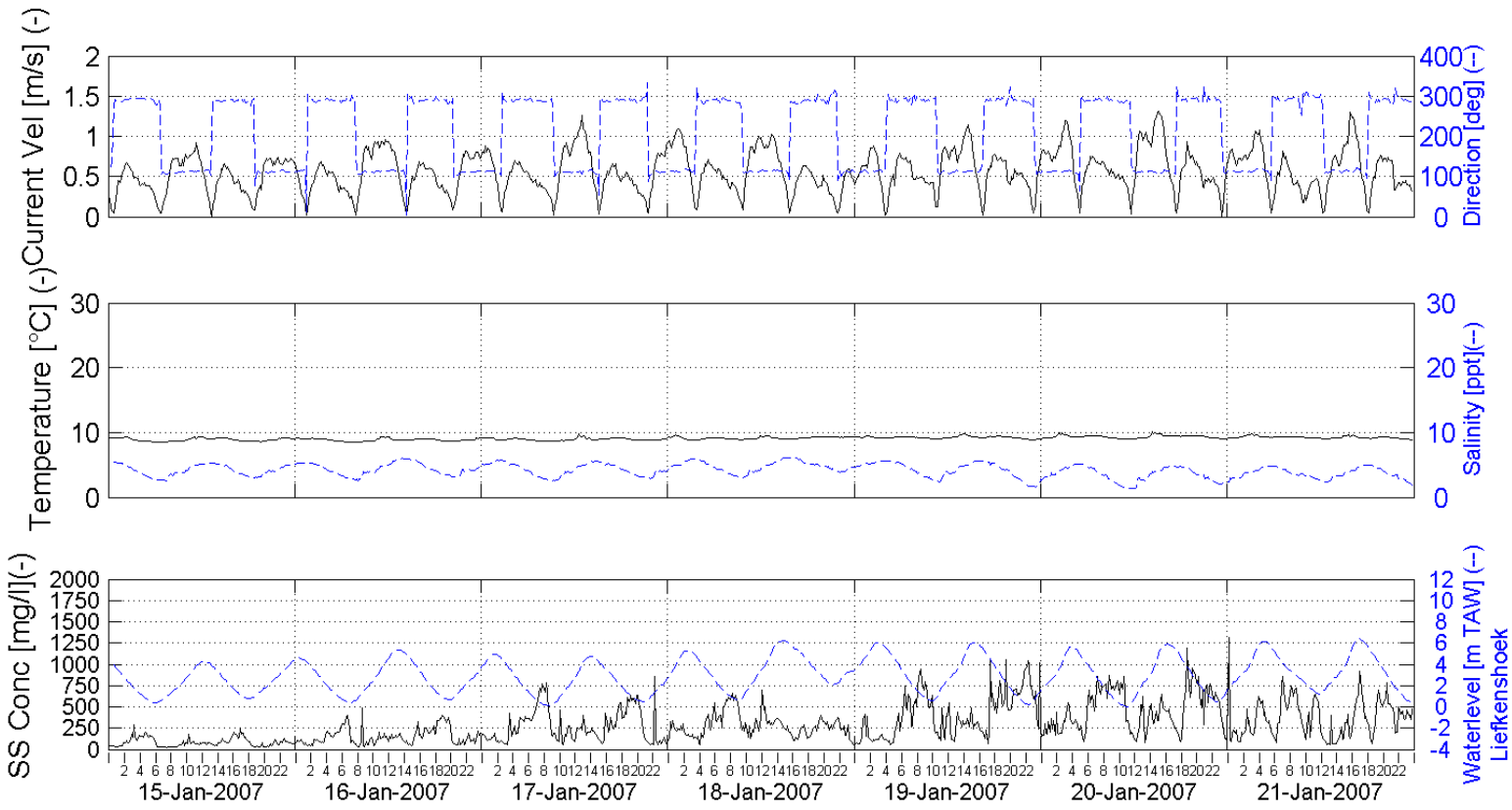
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 3 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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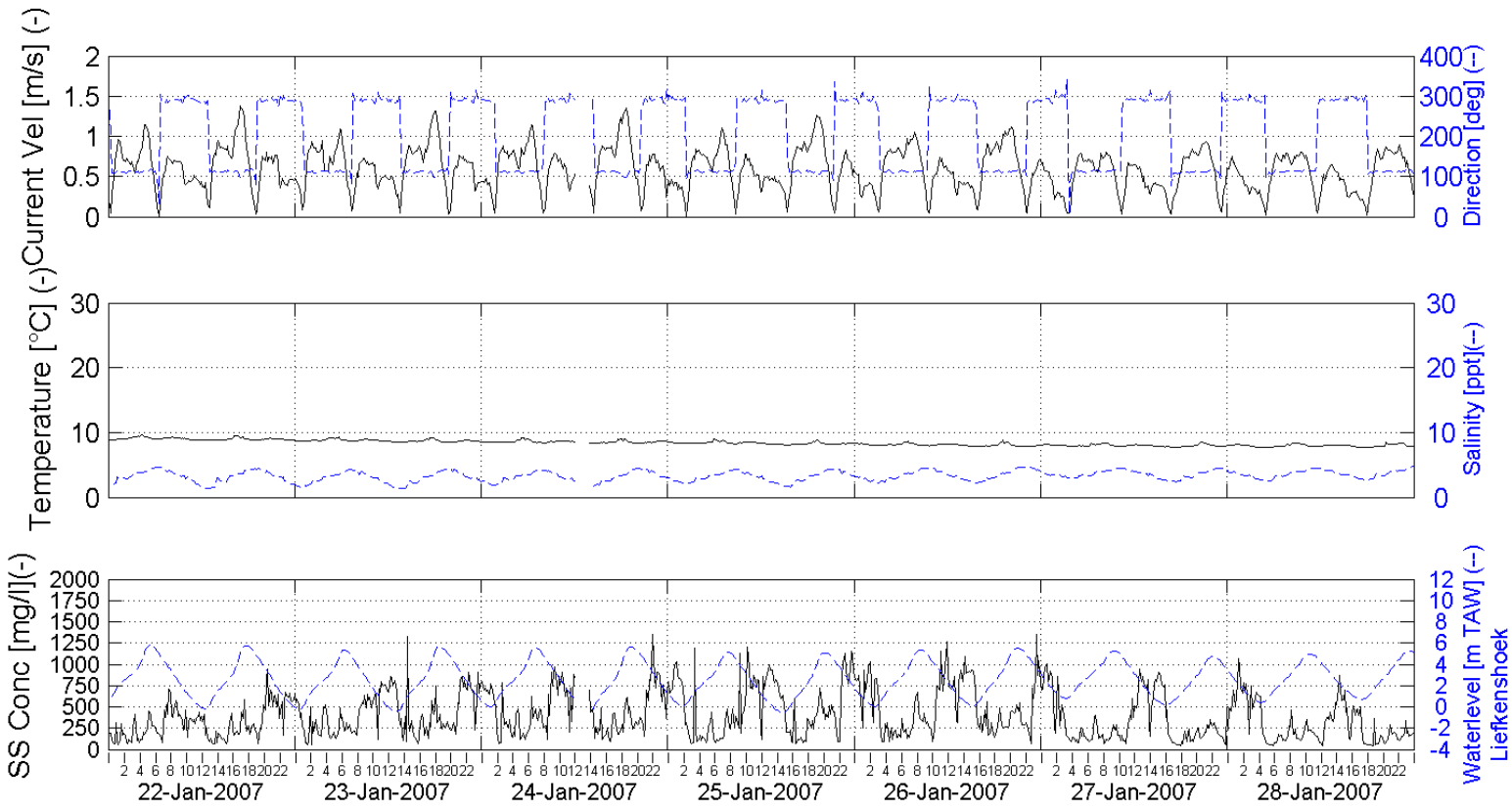
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 4 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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IMDC

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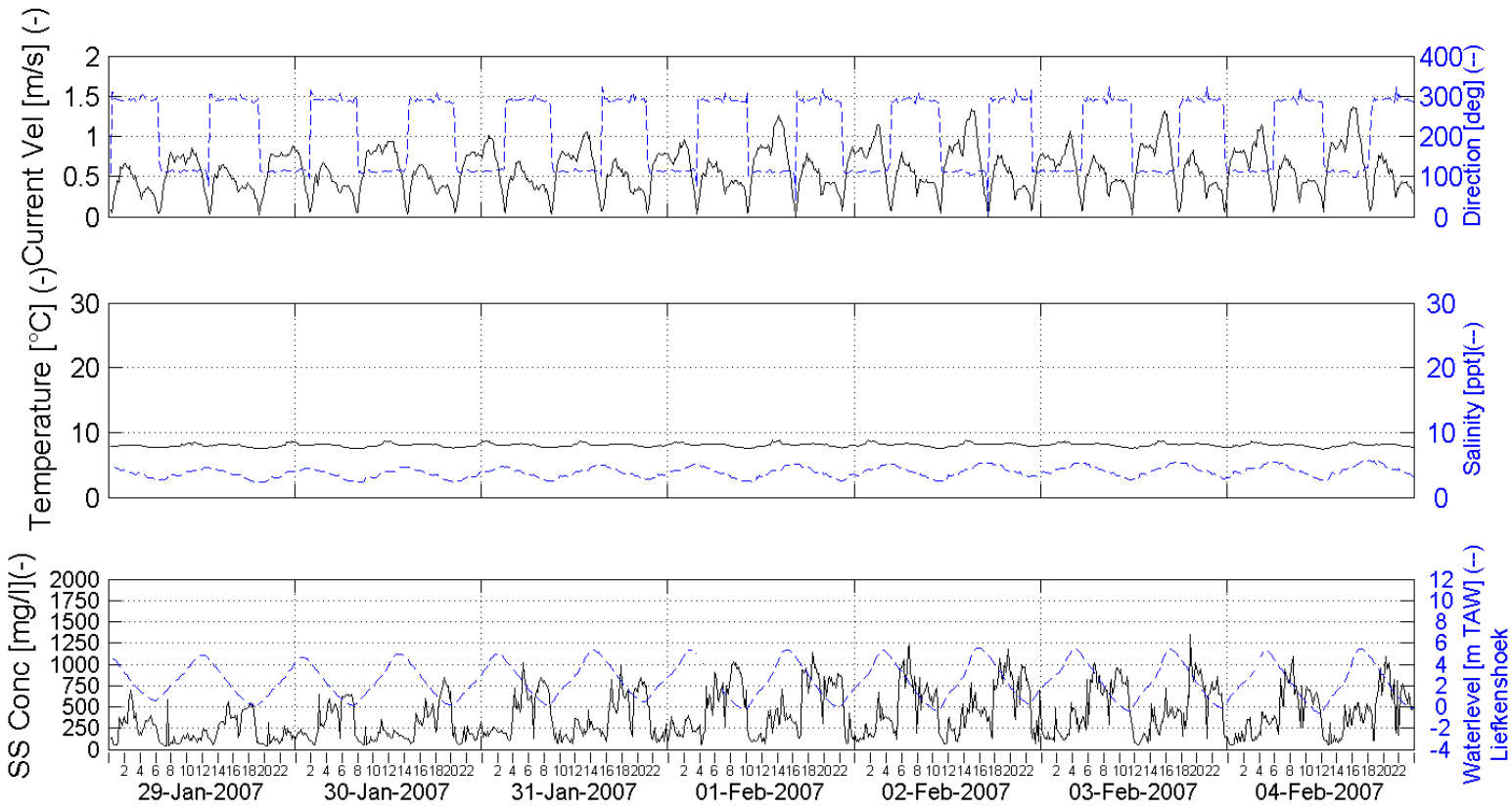
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 5 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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Processed by:

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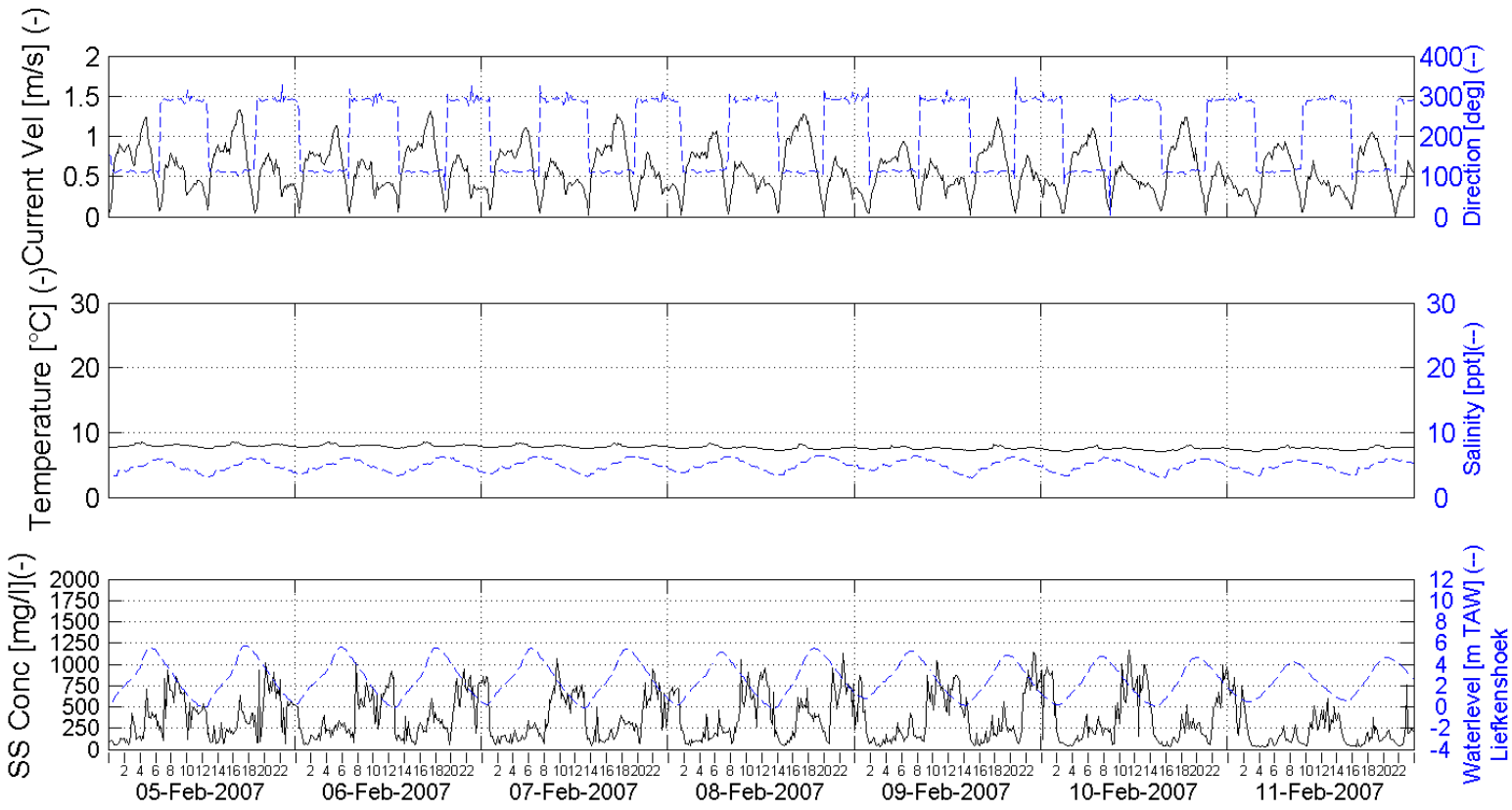
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 6 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 97 top - 3.3m above bottom (-5.3m TAW)

Processed by:

In Association with:

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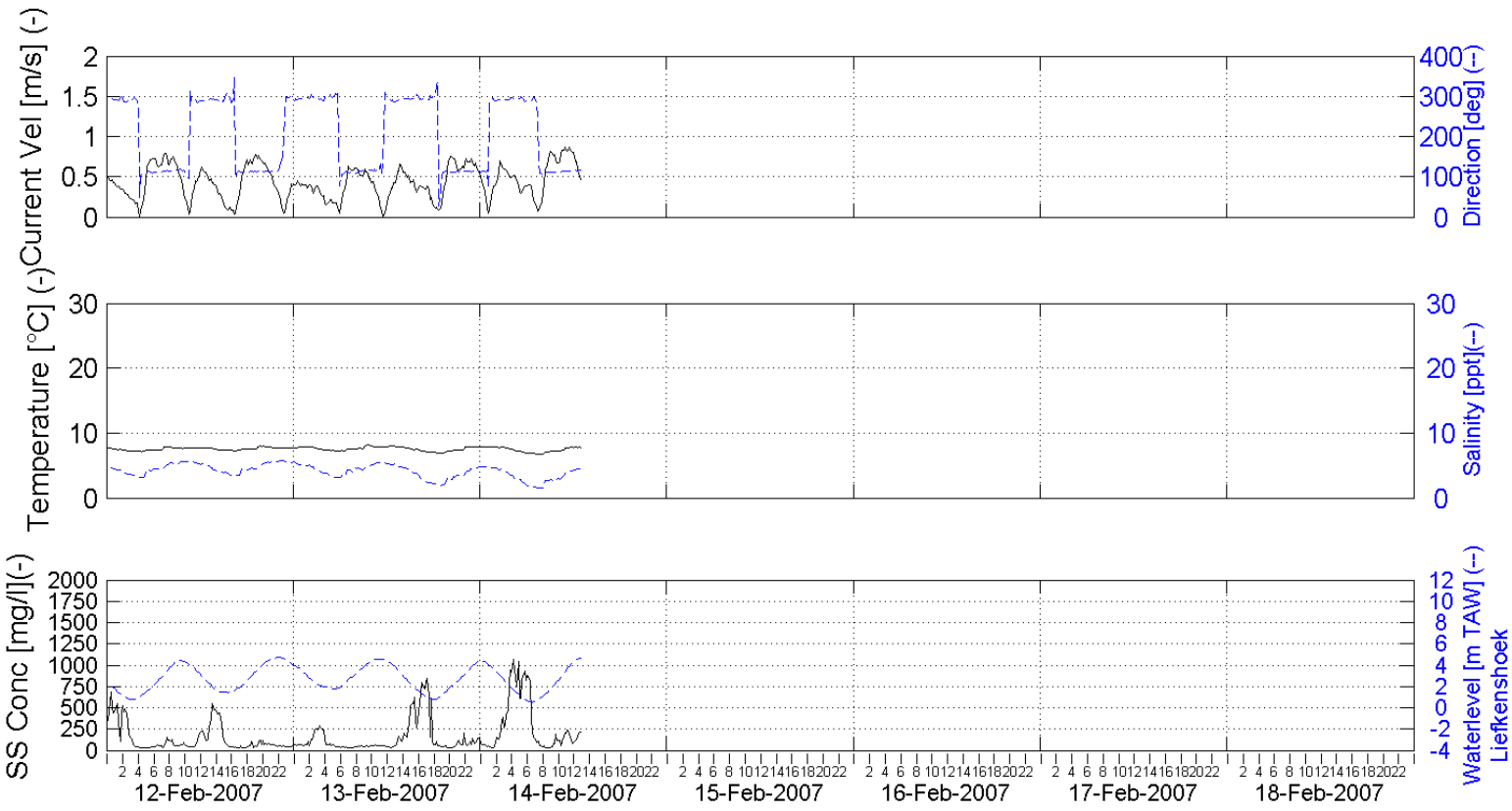
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 7 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

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Processed by:

IMDC

In Association with:

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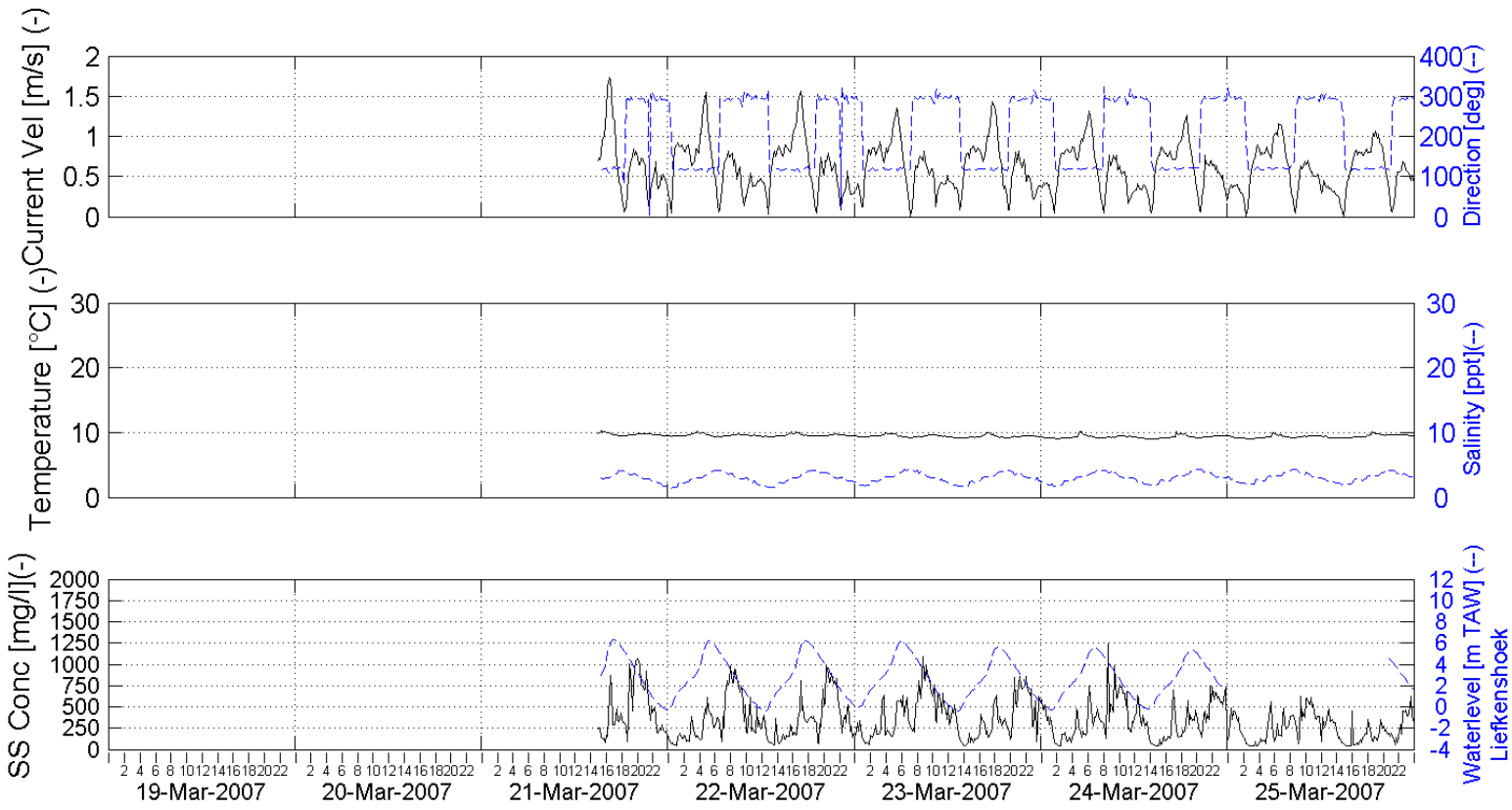
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 12 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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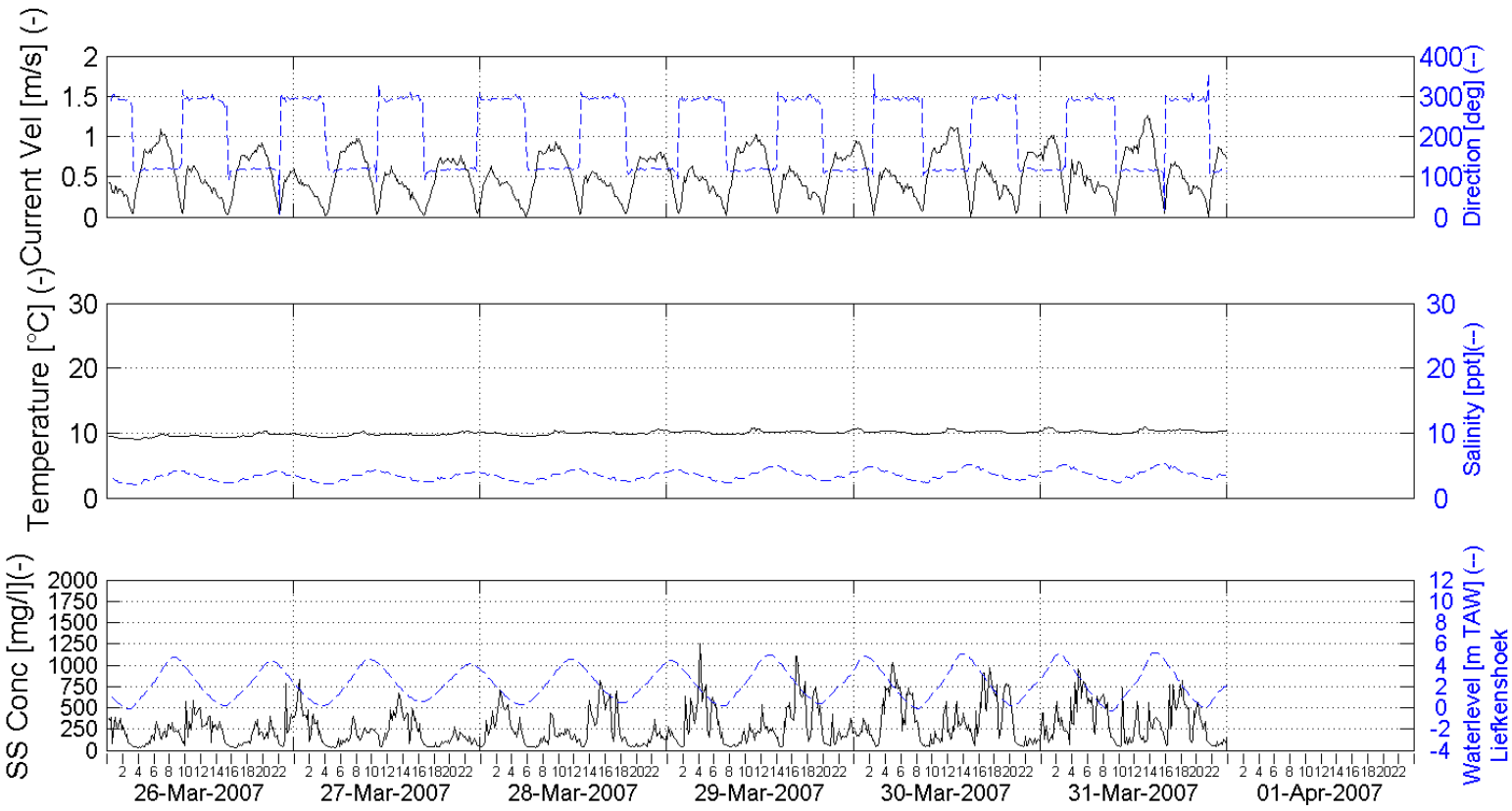
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 13 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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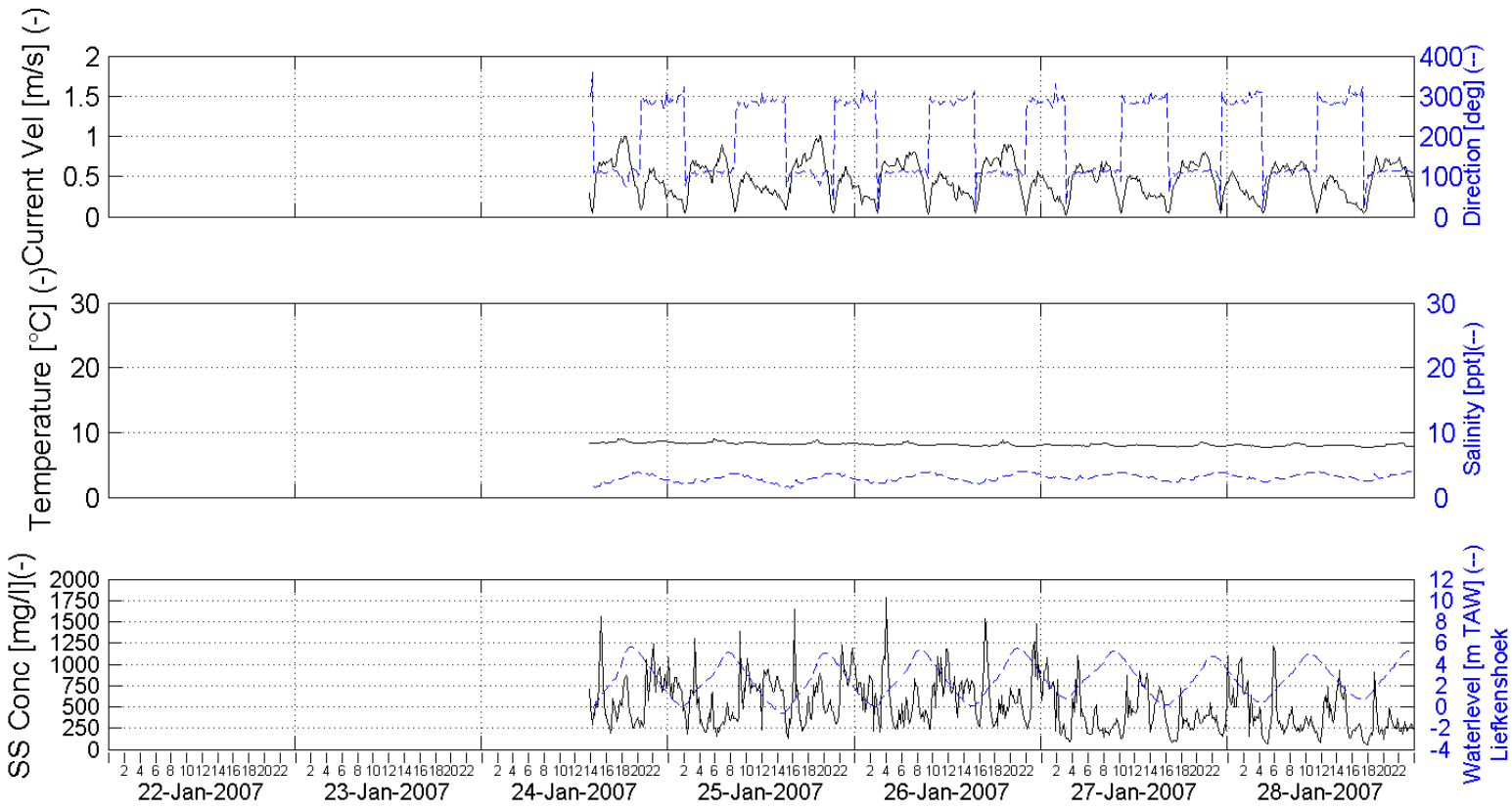
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 4 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 97 bottom - 0.8m above bottom (-7.8m TAW)

Processed by:

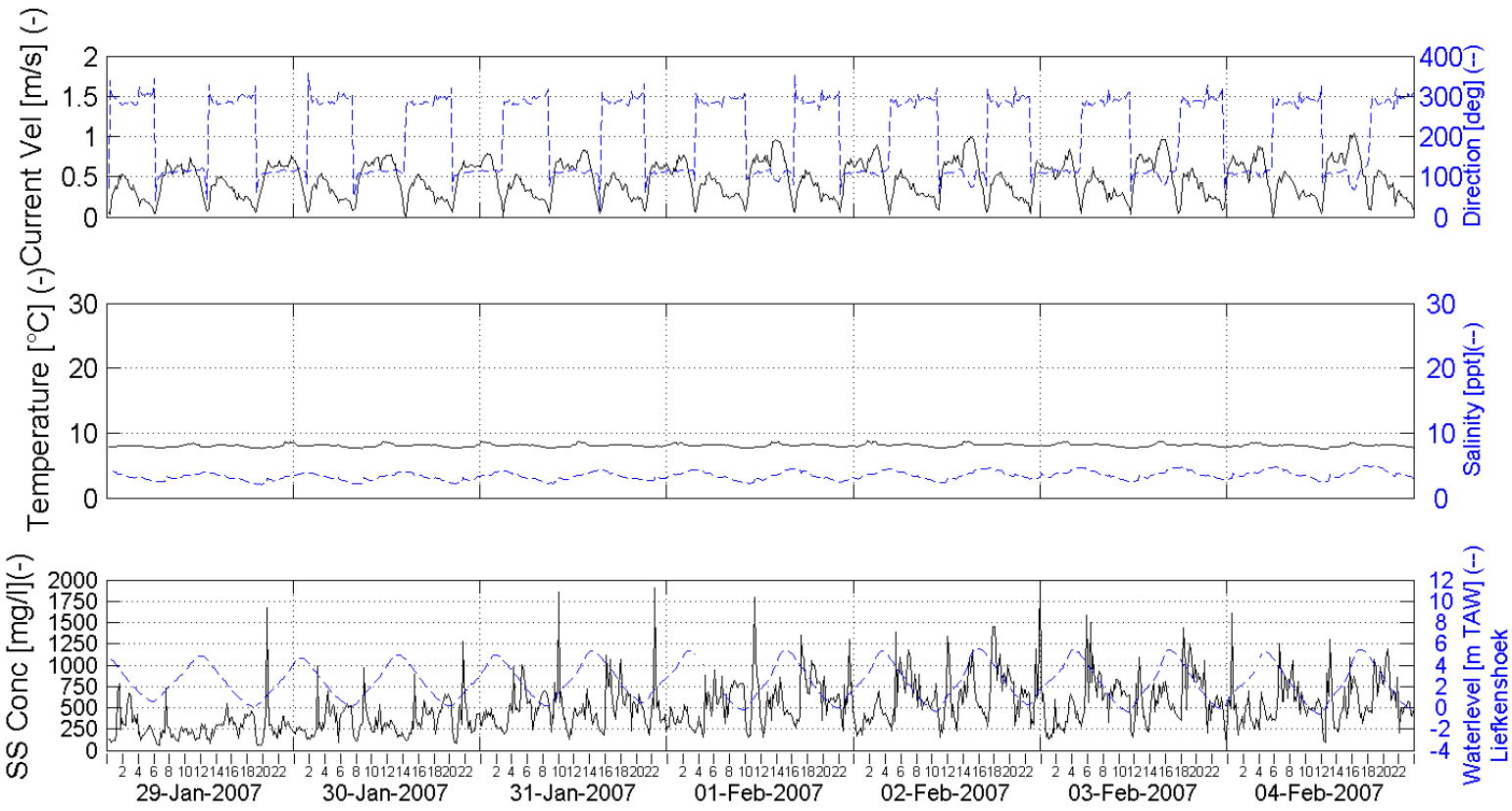
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 5 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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Buoy 97 bottom - 0.8m above bottom (-7.8m TAW)

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IMDC

In Association with:

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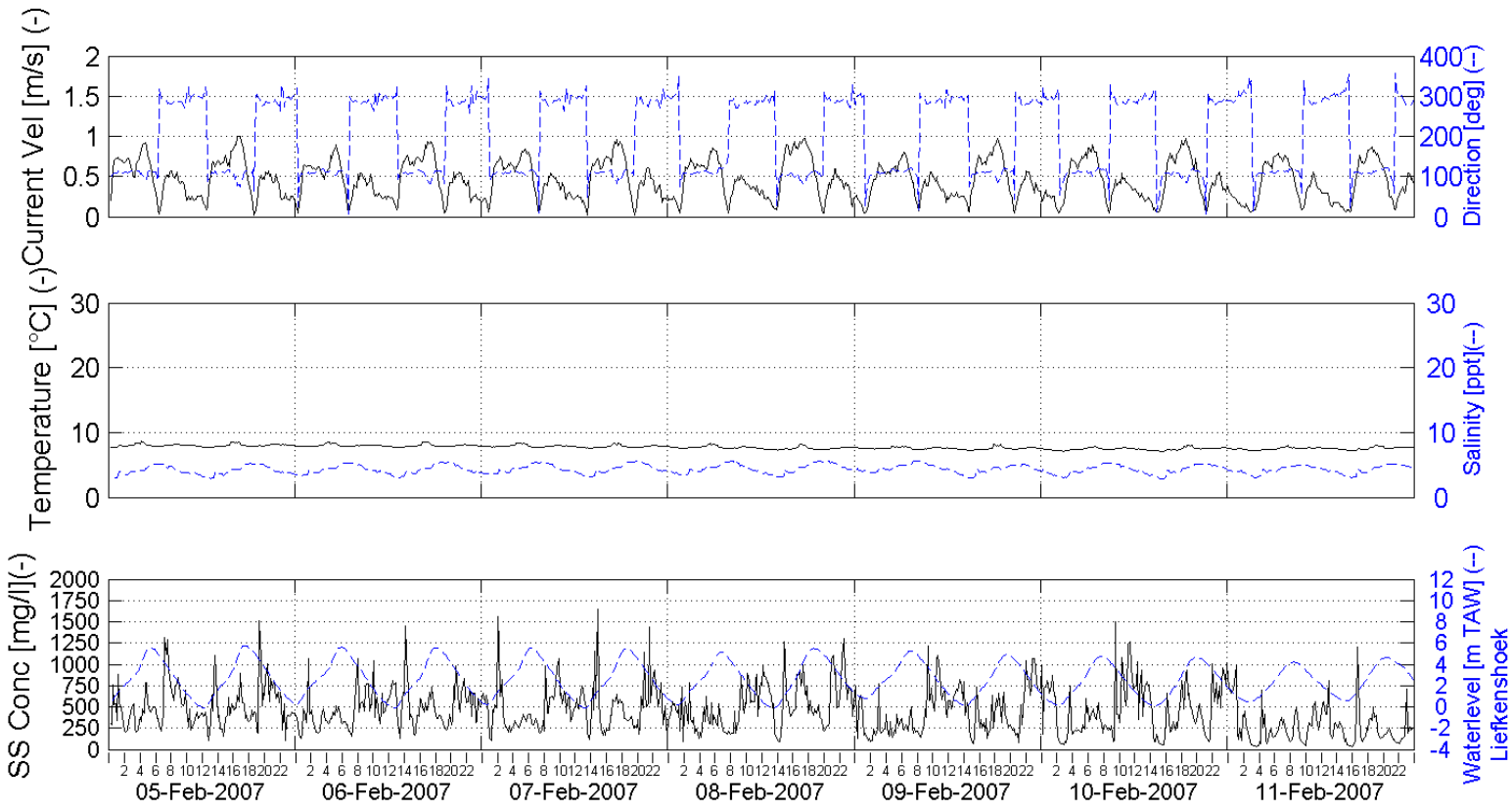
Week 6 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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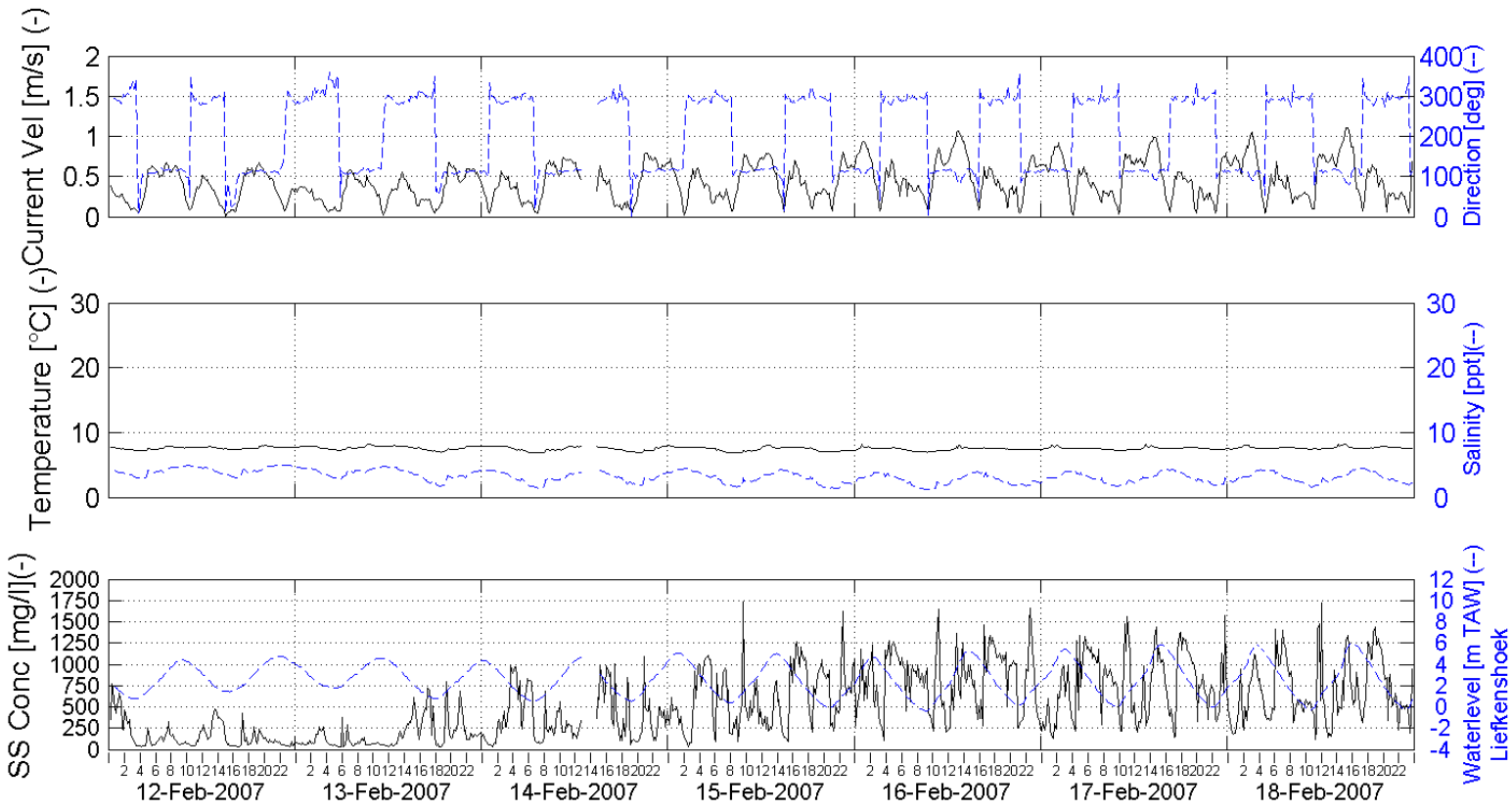
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 7 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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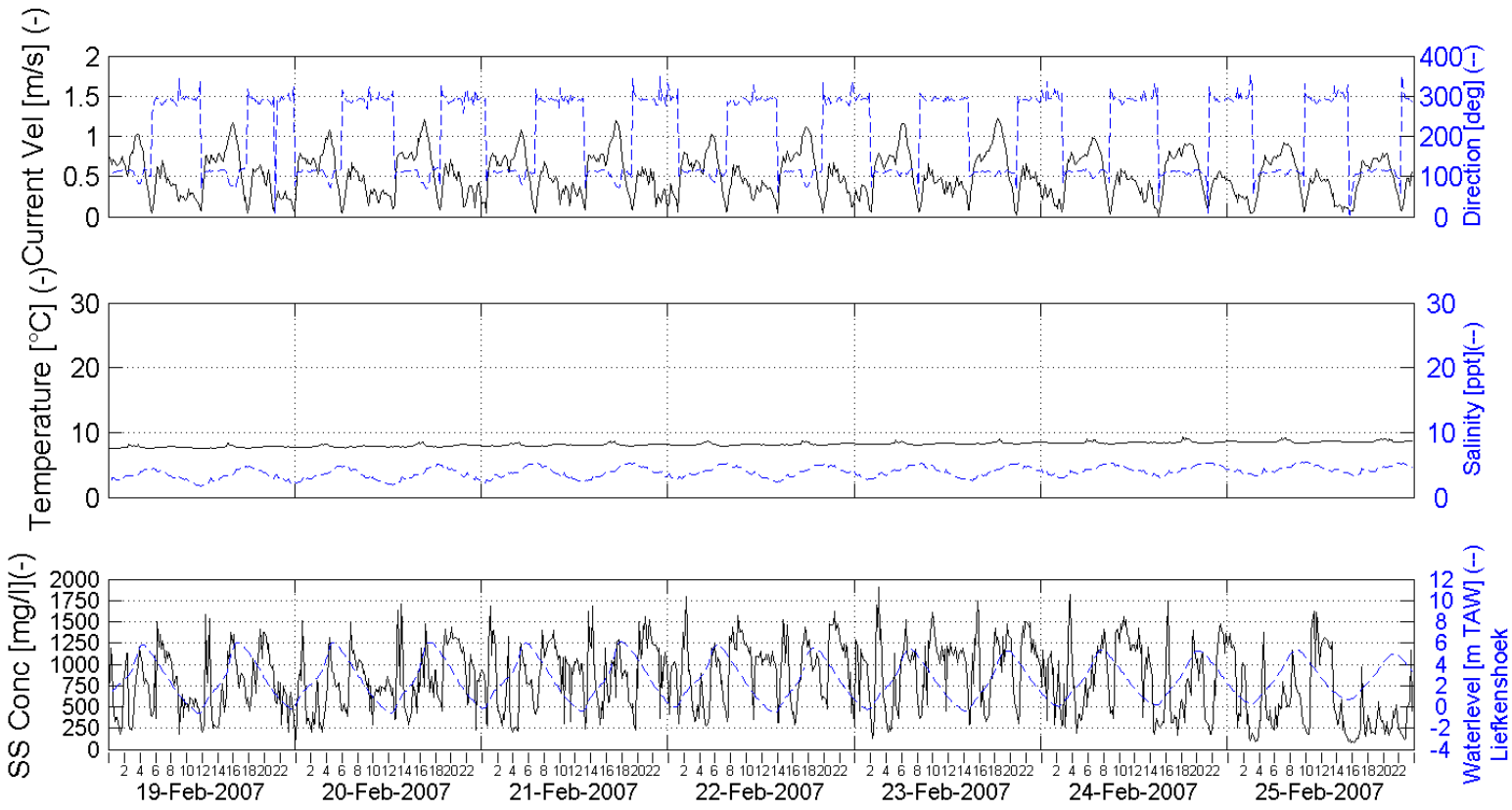
Week 8 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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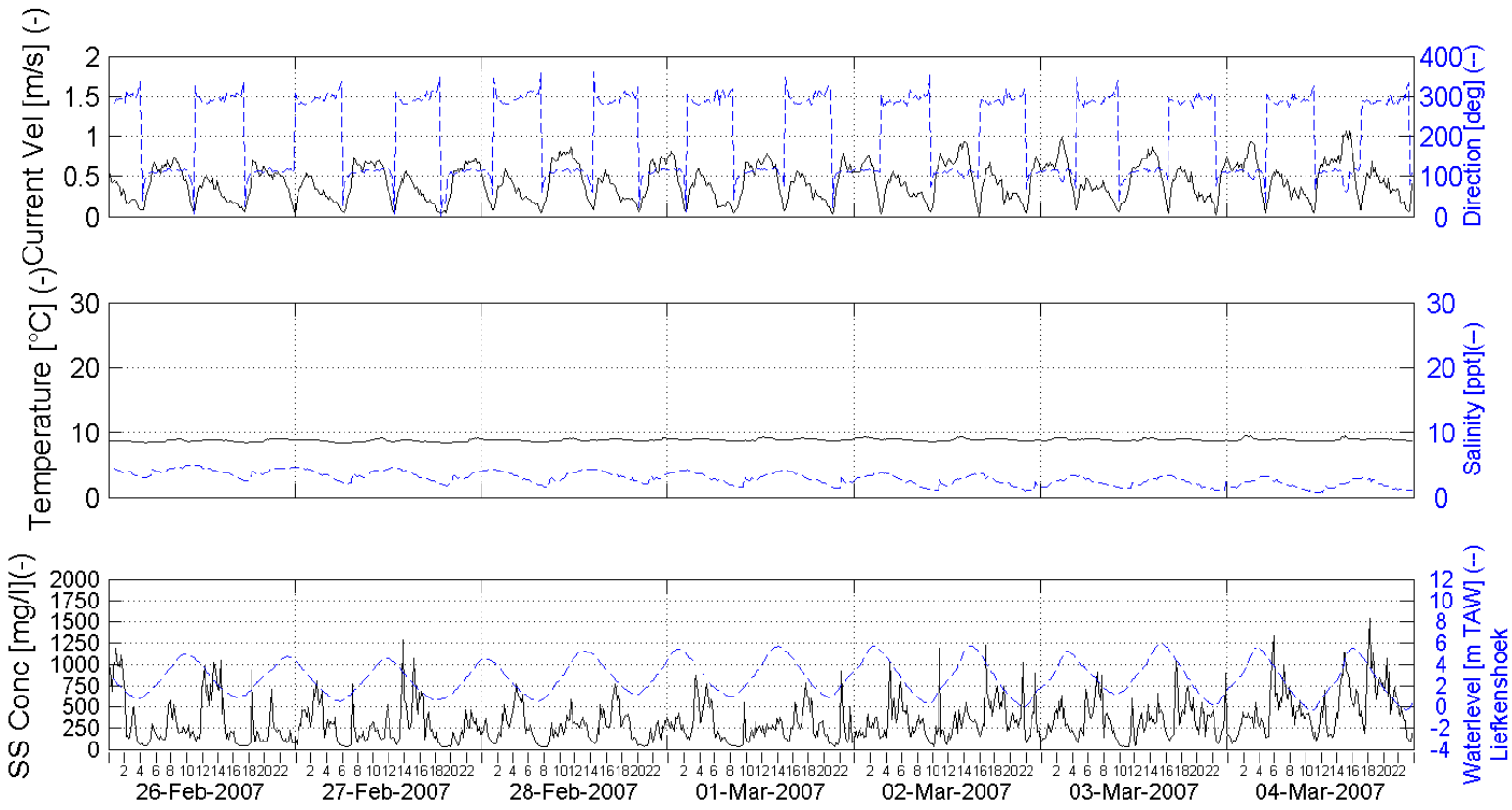
Week 9 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

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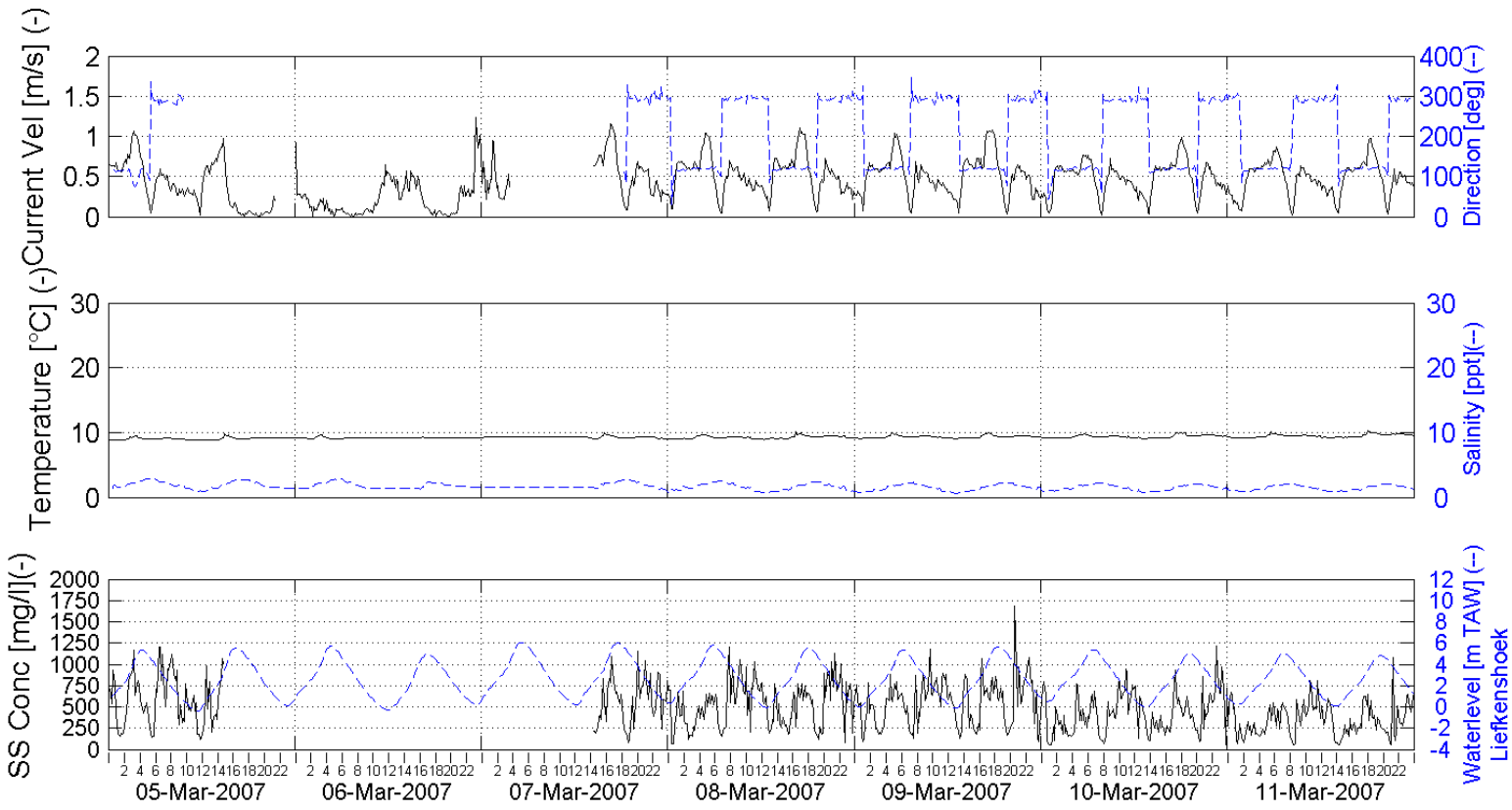
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 10 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 97 bottom - 0.8m above bottom (-7.8m TAW)

Processed by:

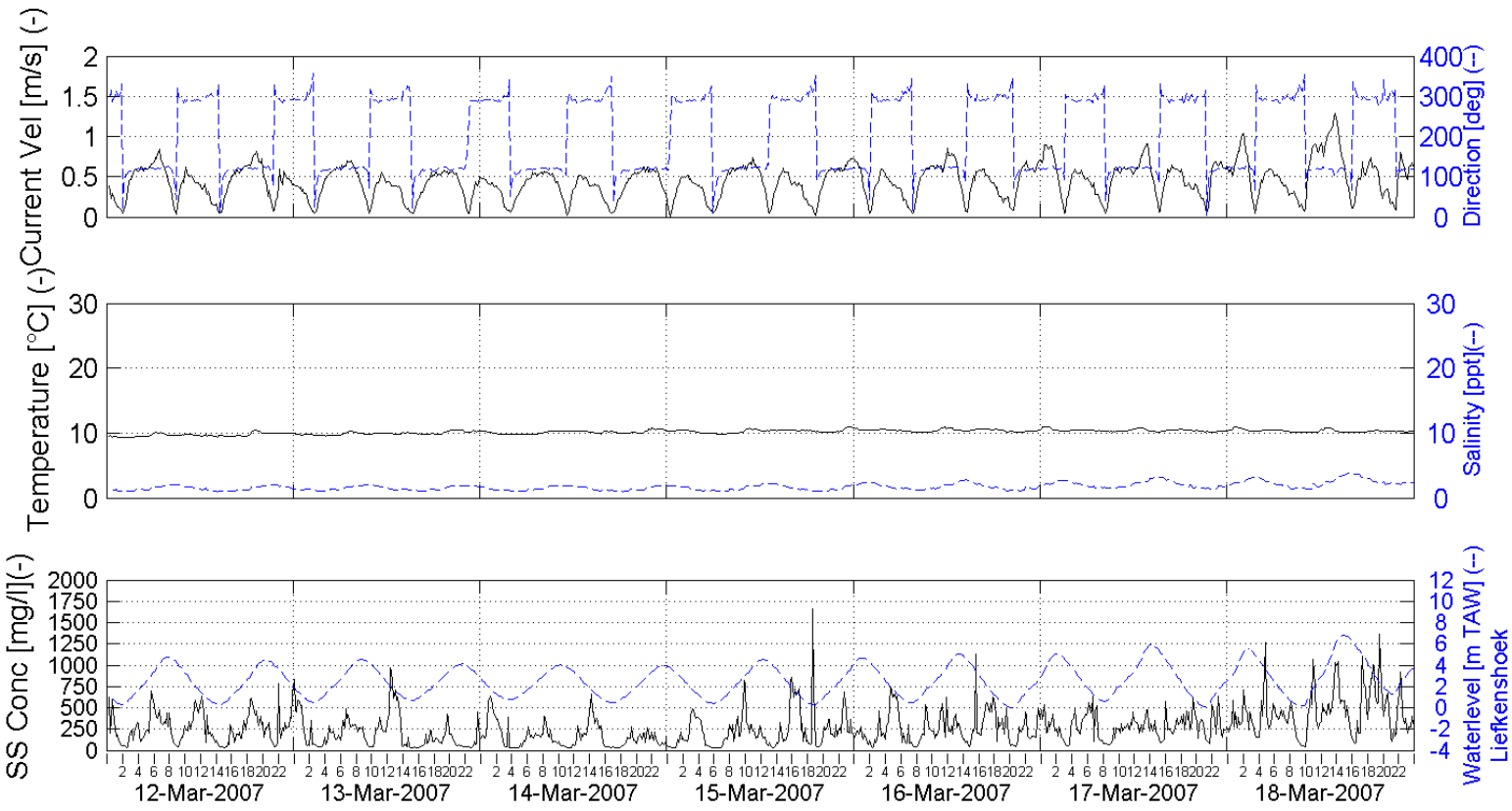
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 11 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 97 bottom - 0.8m above bottom (-7.8m TAW)

Processed by:

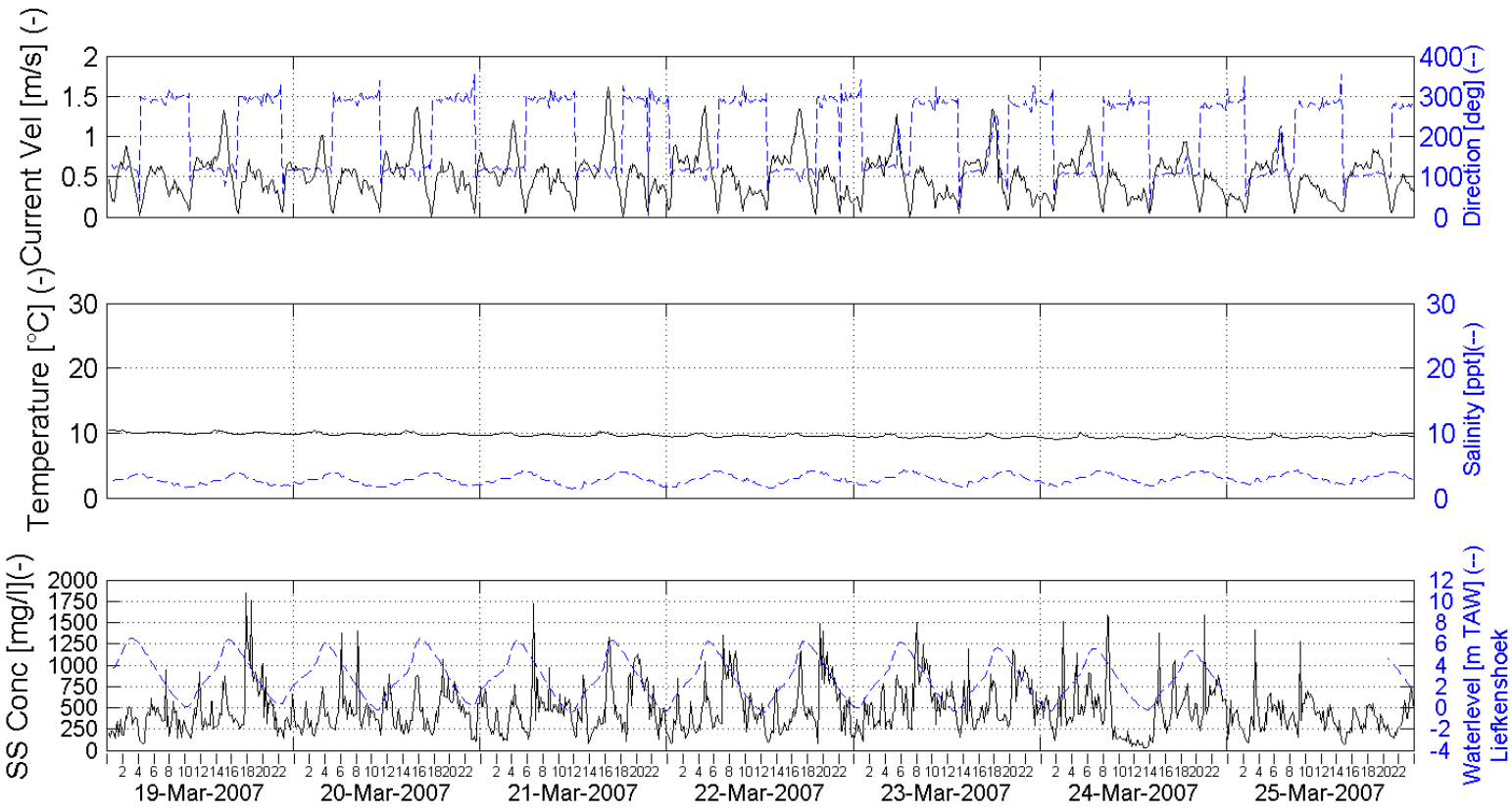
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 12 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 97 bottom - 0.8m above bottom (-7.8m TAW)

Processed by:

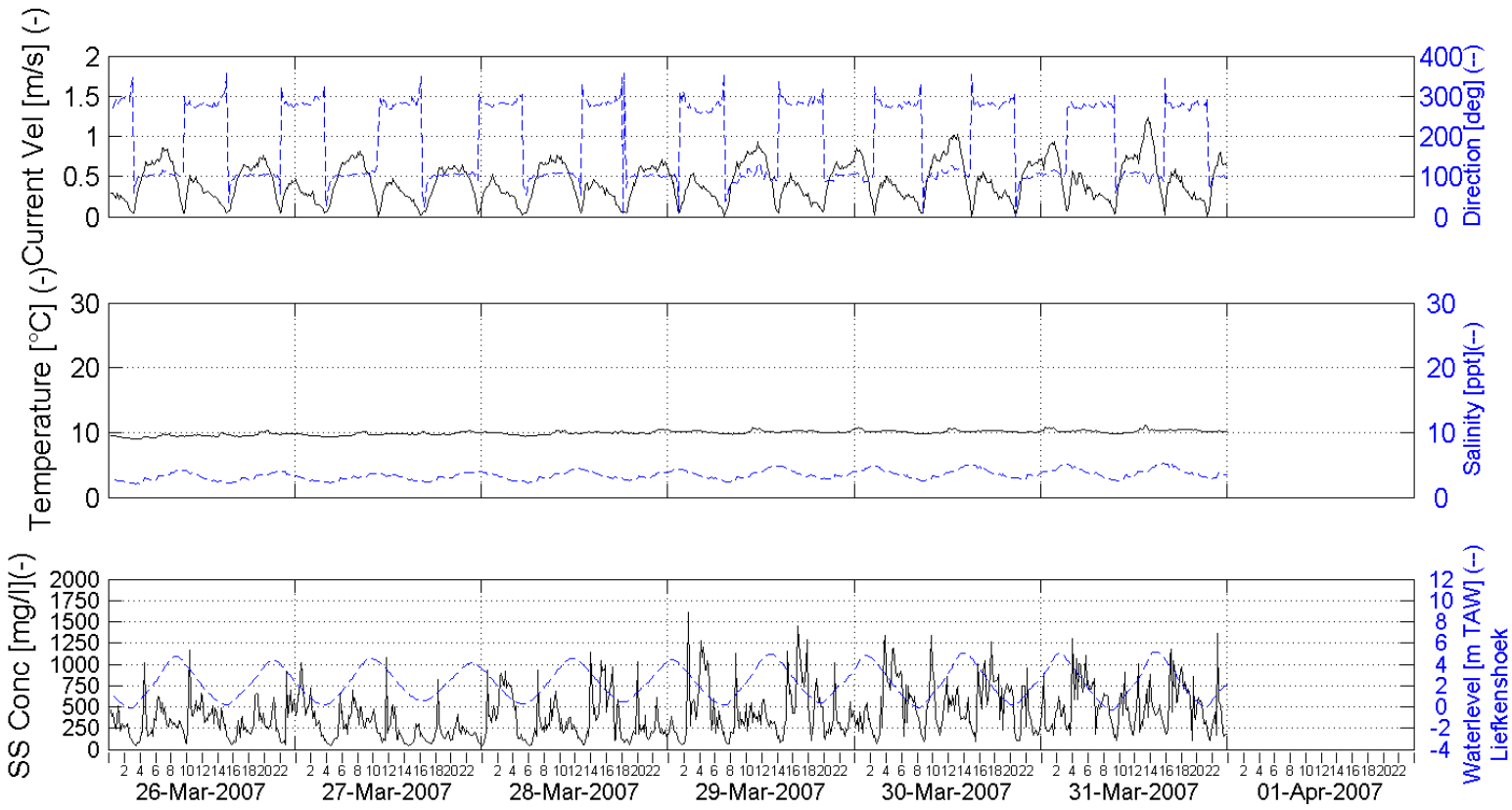
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 13 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Buoy 97 bottom - 0.8m above bottom (-7.8m TAW)

Processed by:

IMDC

In Association with:

I/RA/11283/06.127/MSA

B.2 Monthly results minimum, maximum and average of velocity magnitude, temperature, salinity and suspended sediment concentration

Location: Buoy 84
3.3 meter above bottom [-5.6 m TAW]

Velocity magnitude [m/s]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	0.01		1.42		0.51	
February 2007	0.00		1.45		0.52	
March 2007	0.01		1.47		0.54	
Temperature [°C]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	7.4		9.9		8.4	
February 2007	7.1		9.2		8.0	
March 2007	8.5		10.6		9.6	
Salinity [ppt]						
Month	**Minimum**		**Maximum**		**Average**	
	HW	**LW**	**HW**	**LW**	**HW**	**LW**
January 2007	4.6	2.6	9.3	6.4	6.3	4.1
February 2007	4.8	3.0	7.2	4.8	6.1	4.0
March 2007	2.3	1.4	6.0	3.7	3.9	2.2
Suspended sediment concentration [mg/l]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	22		2941		173	
February 2007	23		3008		334	
March 2007	25		1435		205	

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

Location: Buoy 84
0.8 meter above bottom [-8.1 m TAW]

Velocity magnitude [m/s]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	0.01		1.07		0.41	
February 2007	0.01		1.31		0.46	
March 2007	0.01		1.37		0.45	
Temperature [°C]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	7.5		9.4		8.3	
February 2007	7.1		9.8		7.9	
March 2007	8.5		10.7		9.6	
Salinity [ppt]						
Month	**Minimum**		**Maximum**		**Average**	
	HW	**LW**	**HW**	**LW**	**HW**	**LW**
January 2007	4.8	3.0	9.6	6.9	6.8	4.5
February 2007	4.6	2.6	7.4	5.0	6.0	3.9
March 2007	2.5	1.4	6.0	4.0	4.0	2.3
Suspended sediment concentration [mg/l]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	25		1643		259	
February 2007	29		2311		615	
March 2007	29		2311		448	

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

Location: Buoy 97
3.3 meter above bottom [-5.3 m TAW]

Velocity magnitude [m/s]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	0.01		1.38		0.53	
February 2007	0.01*		1.37*		0.56*	
March 2007	0.01*		1.73*		0.56*	
Temperature [°C]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	7.1		10.1		8.5	
February 2007	6.7*		8.9*		7.8*	
March 2007	9.0*		11.0*		9.7*	
Salinity [ppt]						
Month	**Minimum**		**Maximum**		**Average**	
	HW	**LW**	**HW**	**LW**	**HW**	**LW**
January 2007	4.2	1.4	7.4	5.2	5.5	2.9
February 2007	4.7*	1.5*	6.4*	4.3*	5.7*	3.1*
March 2007	4.0*	1.4*	5.2*	3.0*	4.4*	2.2*
Suspended sediment concentration [mg/l]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	24		1449		238	
February 2007	30*		1354*		356*	
March 2007	34*		1252*		305*	

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

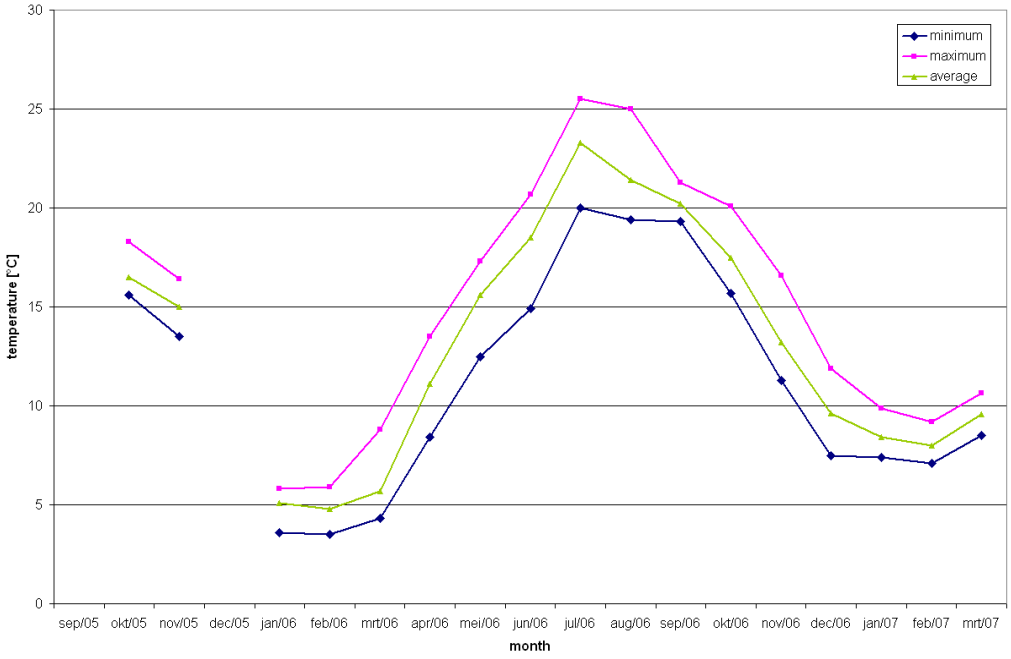
Location: Buoy 97
0.8 meter above bottom [-7.8 m TAW]

Velocity magnitude [m/s]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	-		-		-	
February 2007	0.01		1.22		0.46	
March 2007	0.00		1.61		0.46	
Temperature [°C]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	-		-		-	
February 2007	6.8		9.3		7.9	
March 2007	8.6		11.2		9.6	
Salinity [ppt]						
Month	**Minimum**		**Maximum**		**Average**	
	HW	**LW**	**HW**	**LW**	**HW**	**LW**
January 2007	-	-	-	-	-	-
February 2007	3.8	1.2	5.5	4.1	4.8	2.7
March 2007	1.9	0.7	5.2	3.1	3.3	1.7
Suspended sediment concentration [mg/l]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	-		-		-	
February 2007	29		2076		565	
March 2007	31		1843		398	

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

B.3 Graphs monthly results for the whole deployment period

Velocity magnitude & temperature



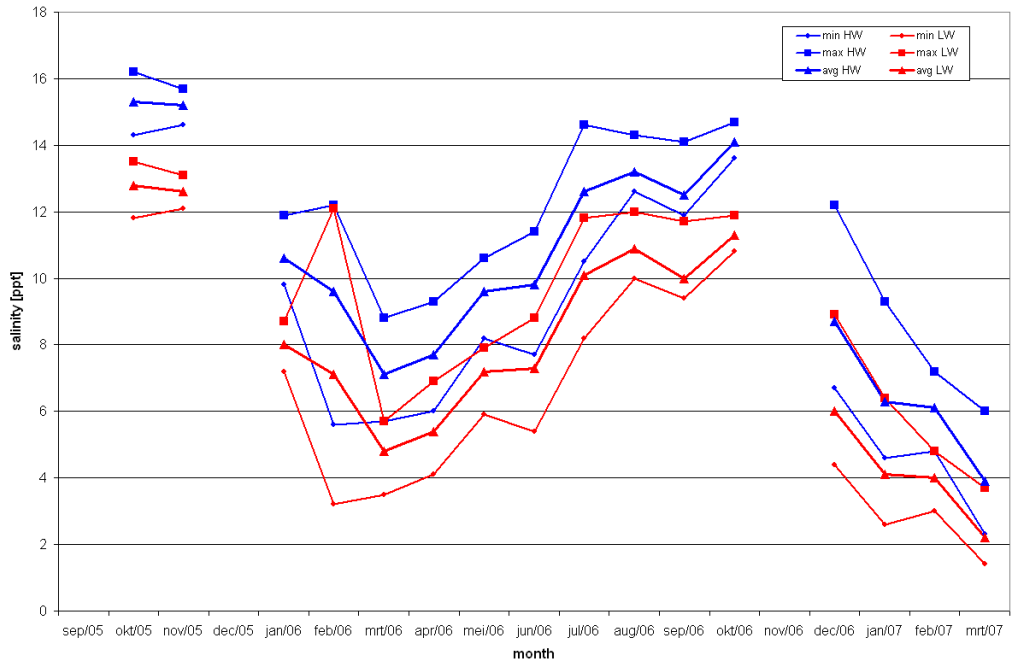
Buoy 84
3.3 m above bottom (-5.6 m TAW)

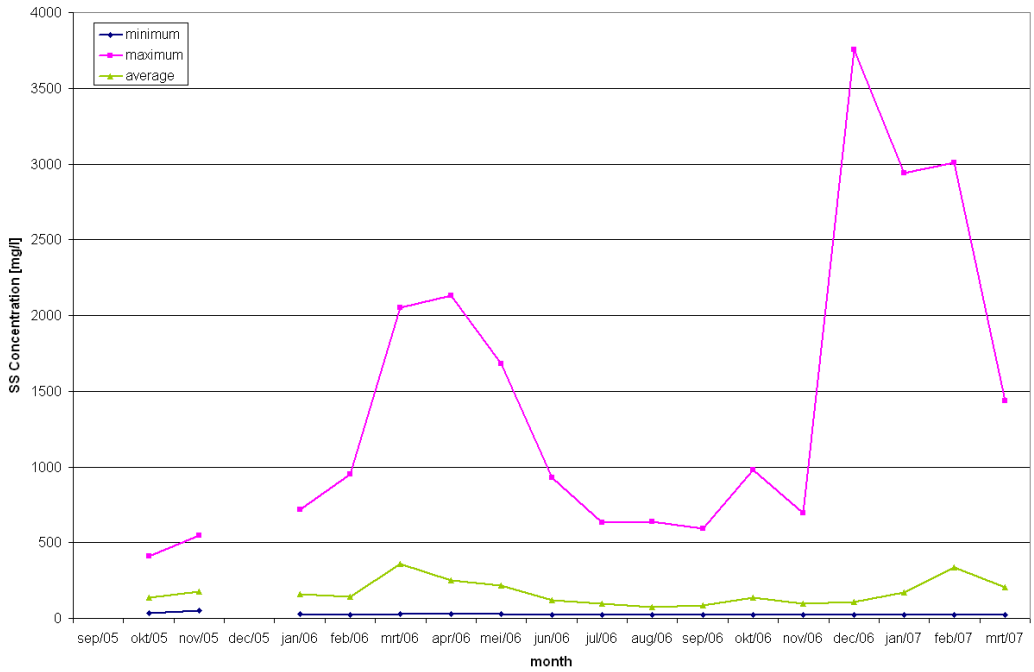
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Salinity & SS Concentration





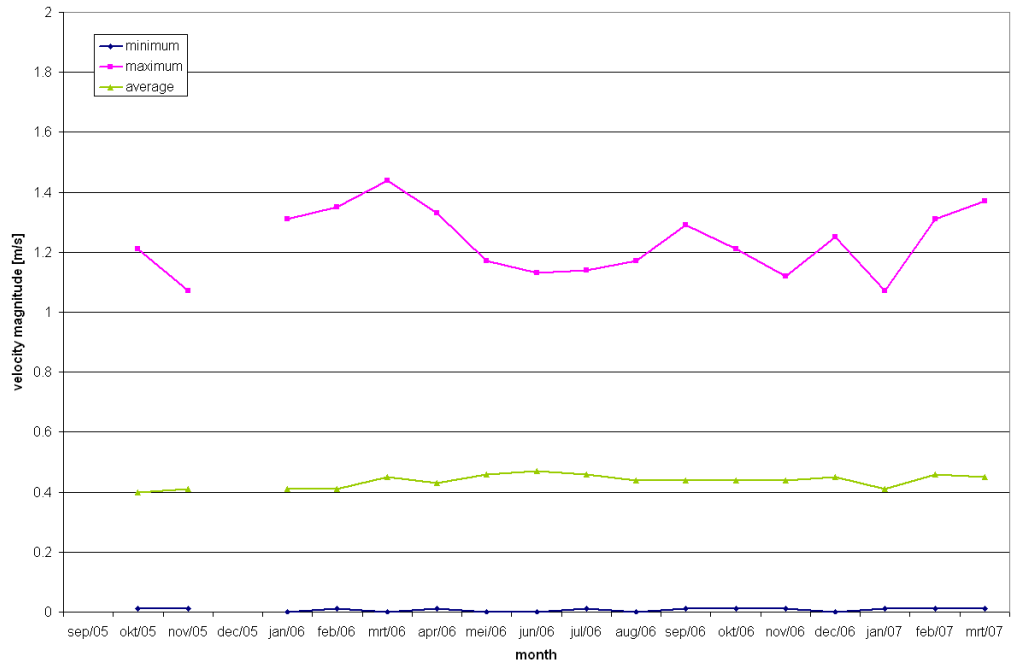
Buoy 84
3.3m above bottom (-5.6m TAW)

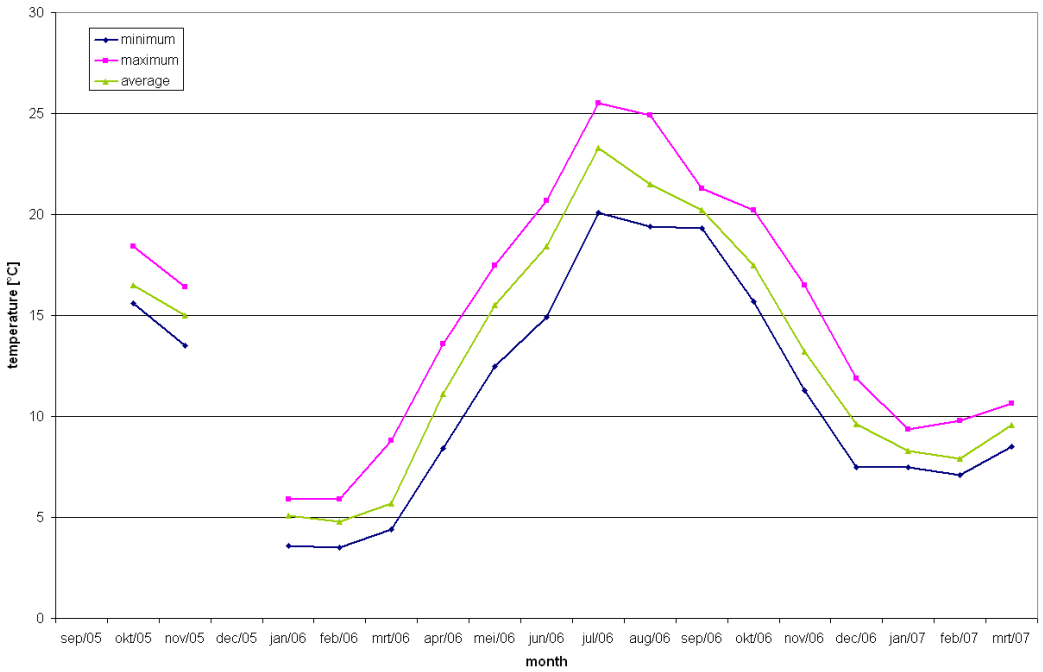
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Velocity magnitude & temperature





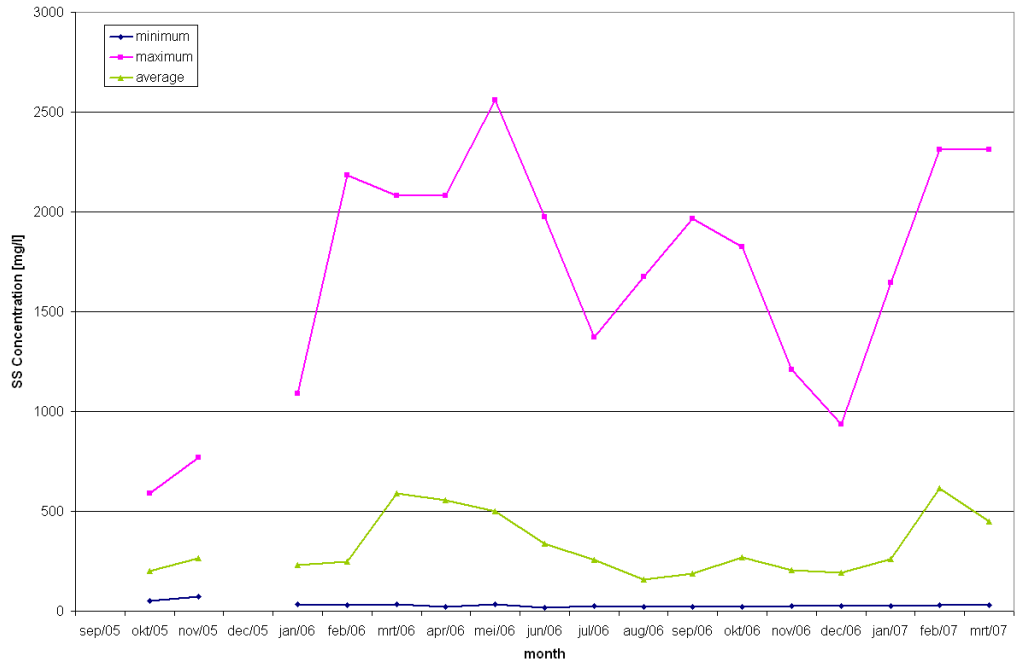
Buoy 84
0.8m above bottom (-8.1m TAW)

Data processed by:

In association with:

I/RA/11291/06.089/MSA

Salinity & SS Concentration



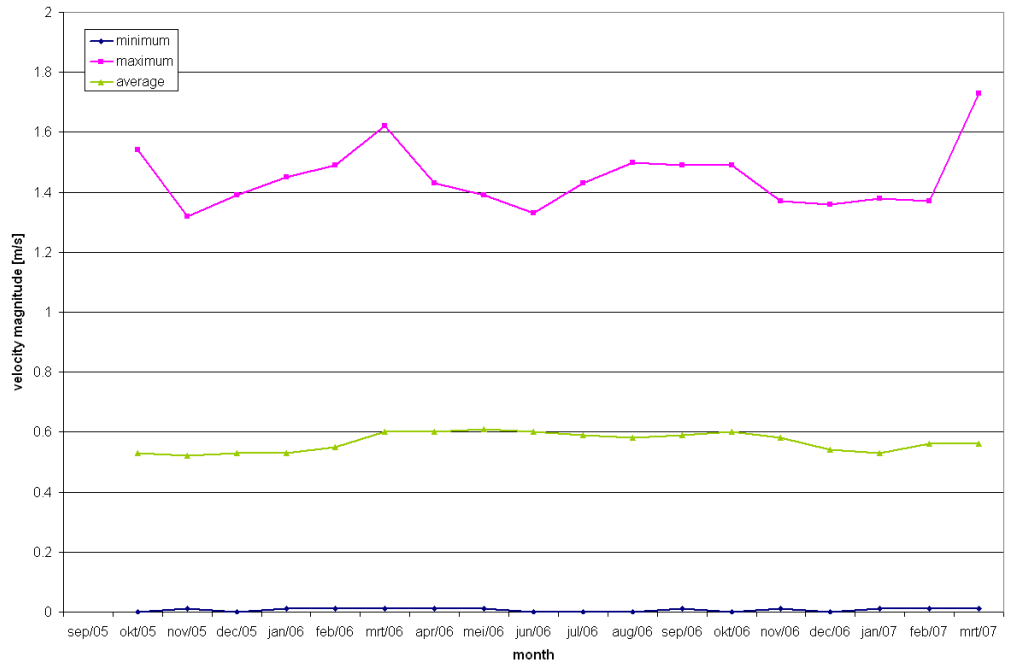
Buoy 84
0.8m above bottom (-8.1m TAW)

Data processed by:

In association with:

I/RA/11291/06.089/MSA

Velocity magnitude & temperature



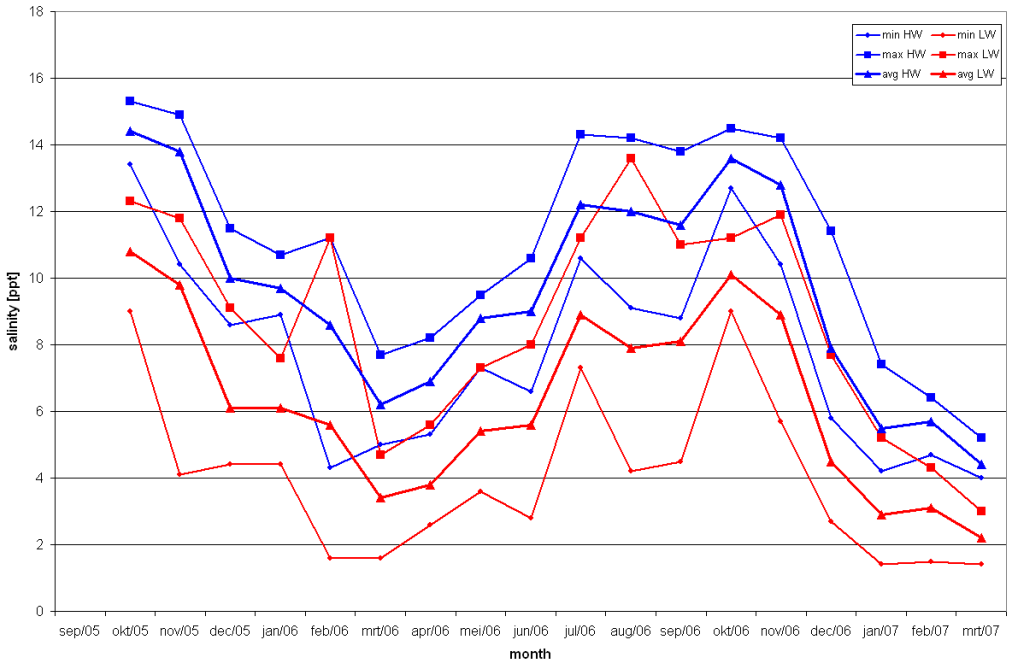
Buoy 97
3.3m above bottom (-5.3m TAW)

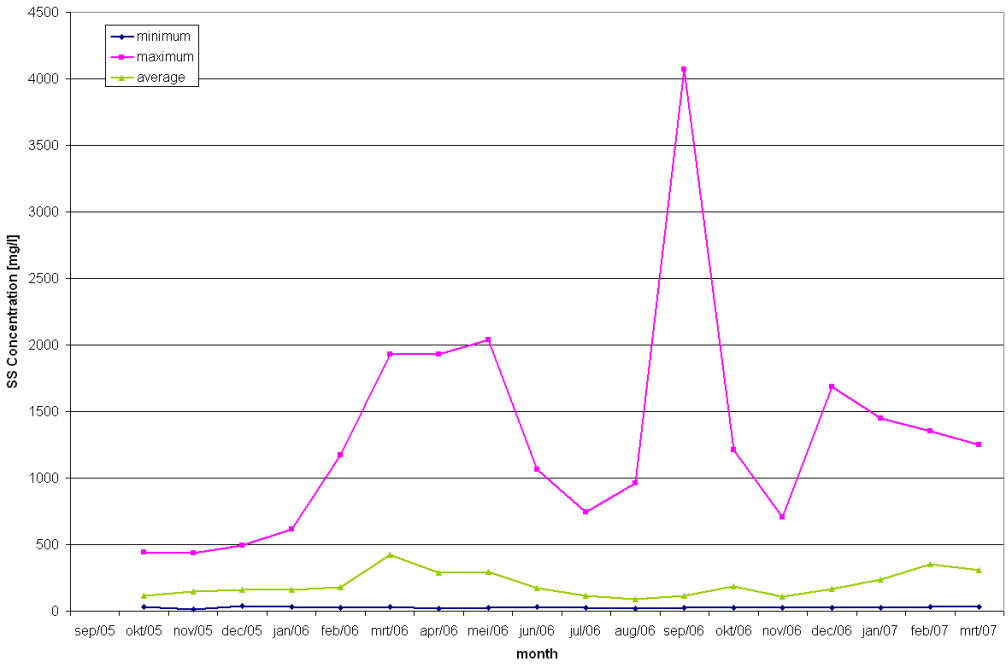
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Salinity & SS Concentration





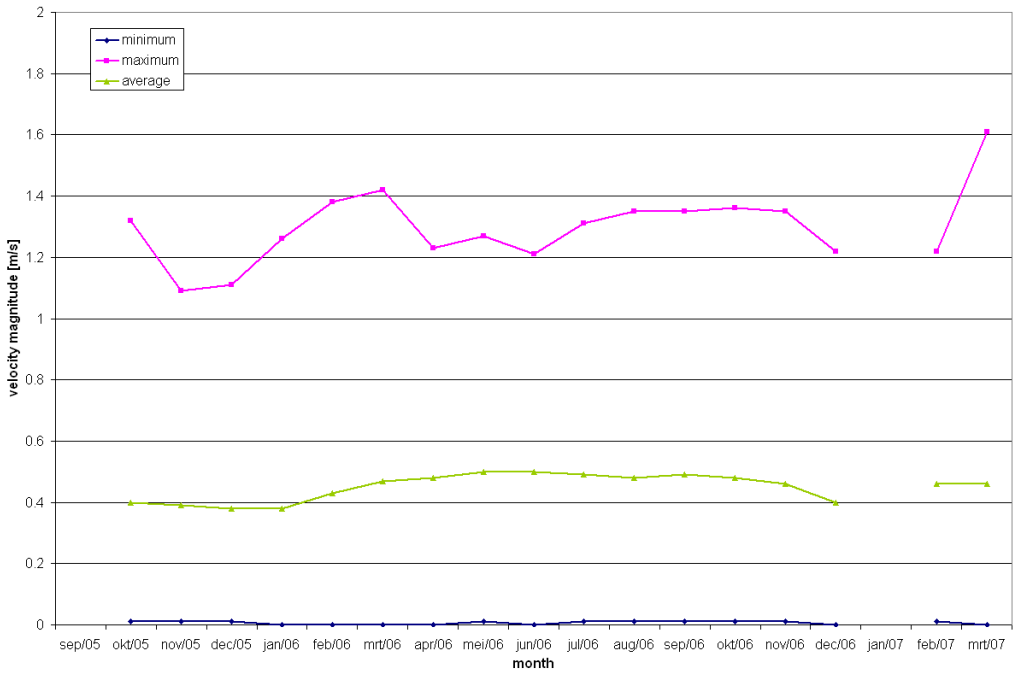
Buoy 97
3.3m above bottom (-5.3m TAW)

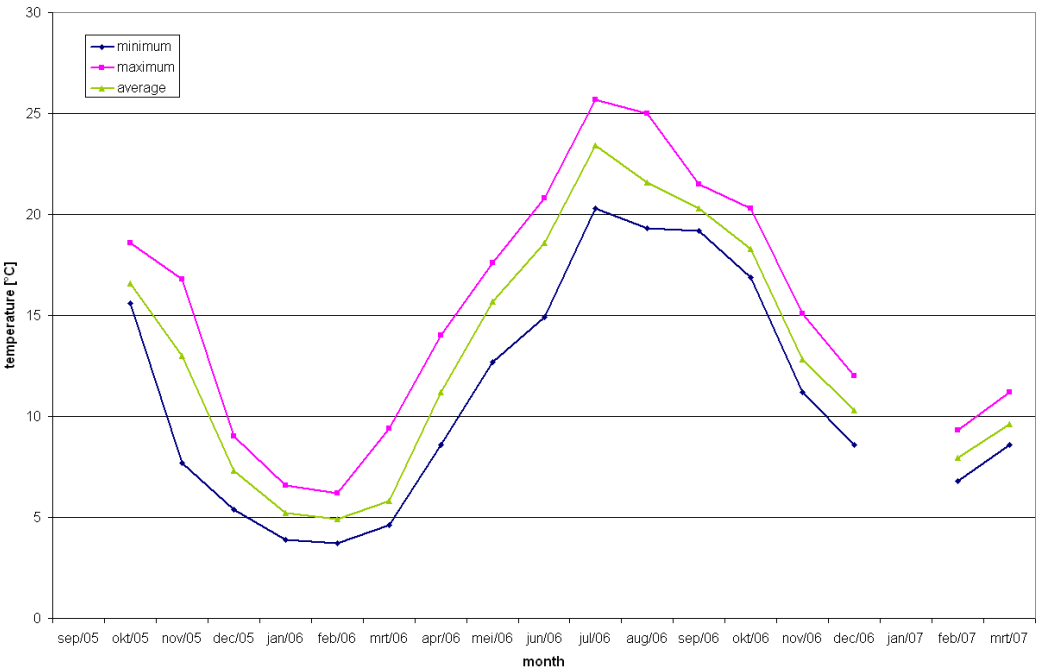
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Velocity magnitude & temperature





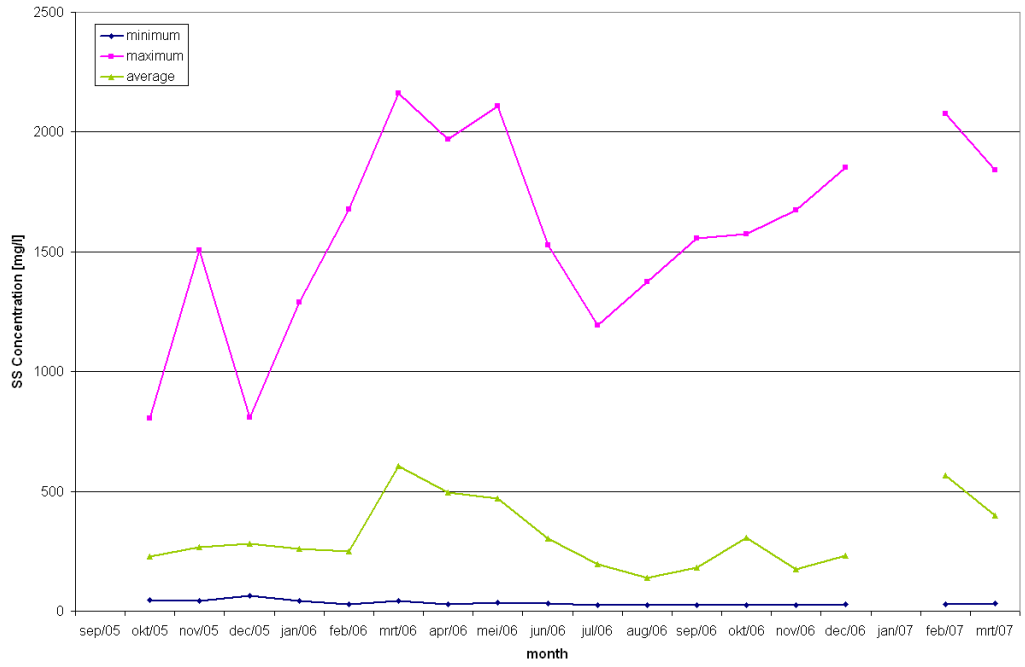
Buoy 97
0.8m above bottom (-7.8m TAW)

Data processed by:

In association with:

I/RA/11291/06.089/MSA

Salinity & SS Concentration



Buoy 97
0.8m above bottom (-7.8m TAW)

Data processed by:

In association with:

I/RA/11291/06.089/MSA

B.4 Total result from January 2007 till March 2007 of velocity magnitude, temperature, salinity and suspended sediment concentration

Averages for the whole deployment period of each instrument [January 2007 – March 2007]

Location	Depth [m TAW]	Velocity [m/s]			Temperature [°C]			SS concentration [mg/l]		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Buoy 84	-5.6	0.00	1.47	0.52	7.1	10.6	8.8	22	3008	225
Buoy 84	-8.1	0.01	1.37	0.44	7.1	10.7	8.6	25	2311	447
Buoy 97	-5.3	0.01*	1.73*	0.54*	6.7*	11.0*	8.5*	24*	1449*	280*
Buoy 97	-7.8	0.00	1.61	0.46	6.8	11.2	8.7	29	2076	477

Salinity [ppt]

Location	Depth [m TAW]	Minimum		Maximum		Average	
		Slack HW	Slack LW	Slack HW	Slack LW	Slack HW	Slack LW
Buoy 84	-5.6	2.3	1.4	9.3	6.4	5.3	3.4
Buoy 84	-8.1	2.5	1.4	9.6	6.9	5.5	3.5
Buoy 97	-5.3	4.0*	1.4*	7.4*	5.2*	5.3*	2.8*
Buoy 97	-7.8	1.9	0.7	5.5	4.1	4.0	2.2

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

APPENDIX C.

LONG TERM MEASUREMENTS AT OOSTERWEEL AND PROSPERPOLDER (WL – CEL HYDROMETRIE)

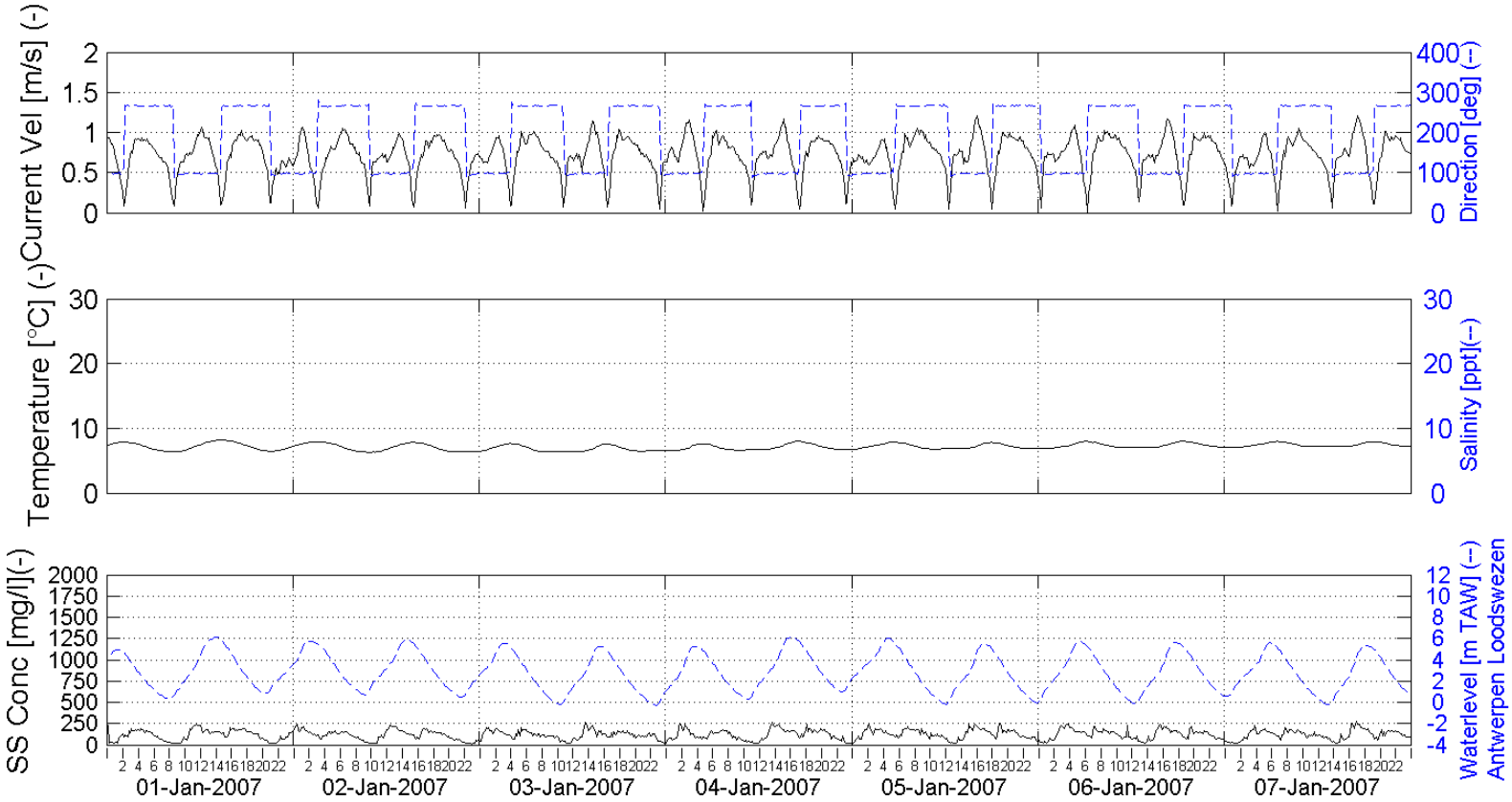
C.1 Datasheets week series

Datasheet order

Nr	*Location*	Depth of Instrument		*Sensor*	*Period*
		[m] above bottom	*[m TAW]*		
1	**Oosterweel left bank**	**4.5**	**-2.3**	**Aanderaa 1117**	**01/01/2007 – 15/02/2007**
				Aanderaa 0579	**08/03/2007 – 22/03/2007**
2	**Oosterweel left bank**	**1.0**	**-5.8**	**Aanderaa 1153**	**01/01/2007 – 31/03/2007**
3	**Prosperpolder**	**2.5**	**-1.5**	**Aanderaa 0117**	**01/01/2007 – 31/03/2007**

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 1 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

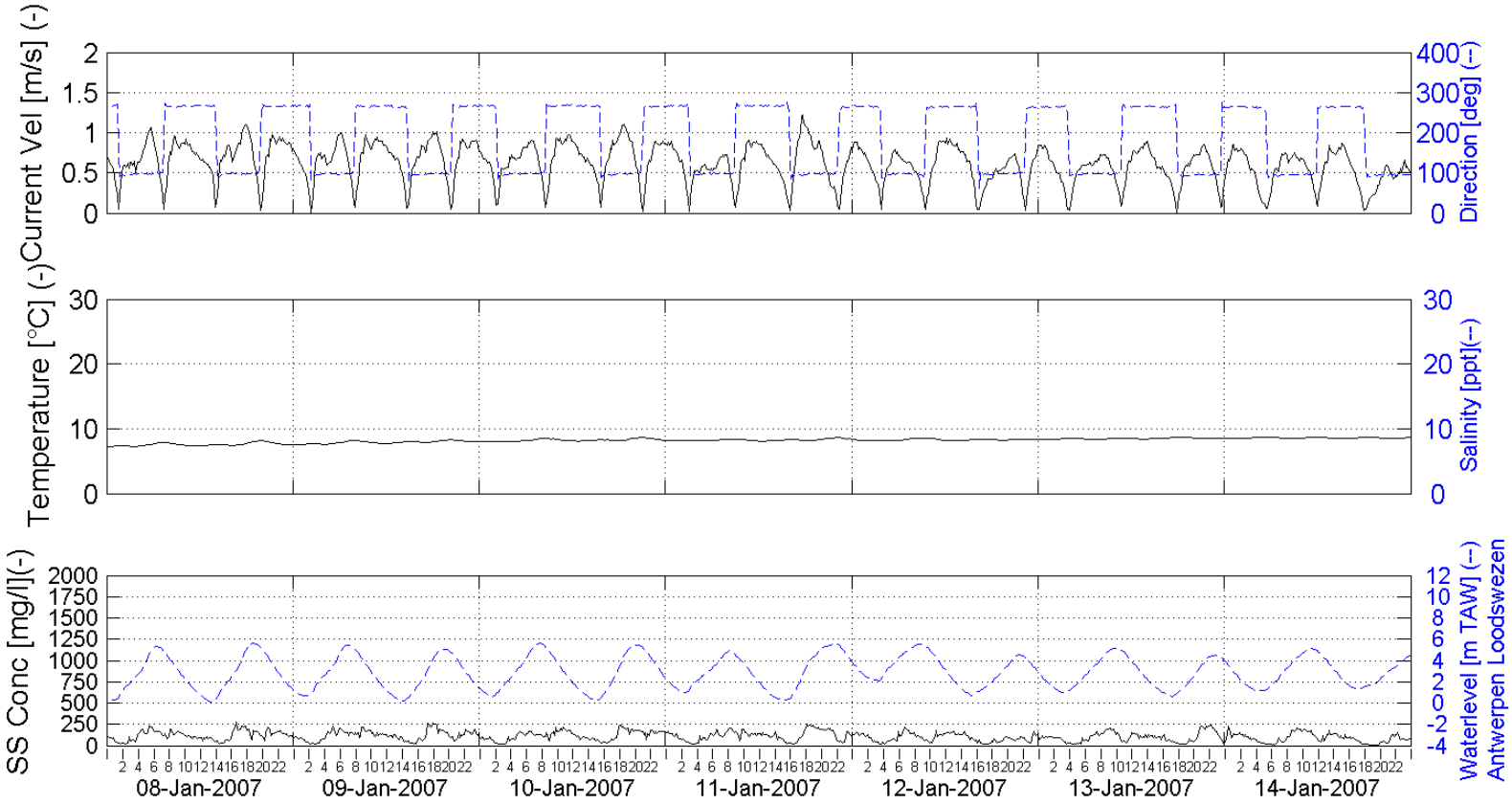
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 2 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

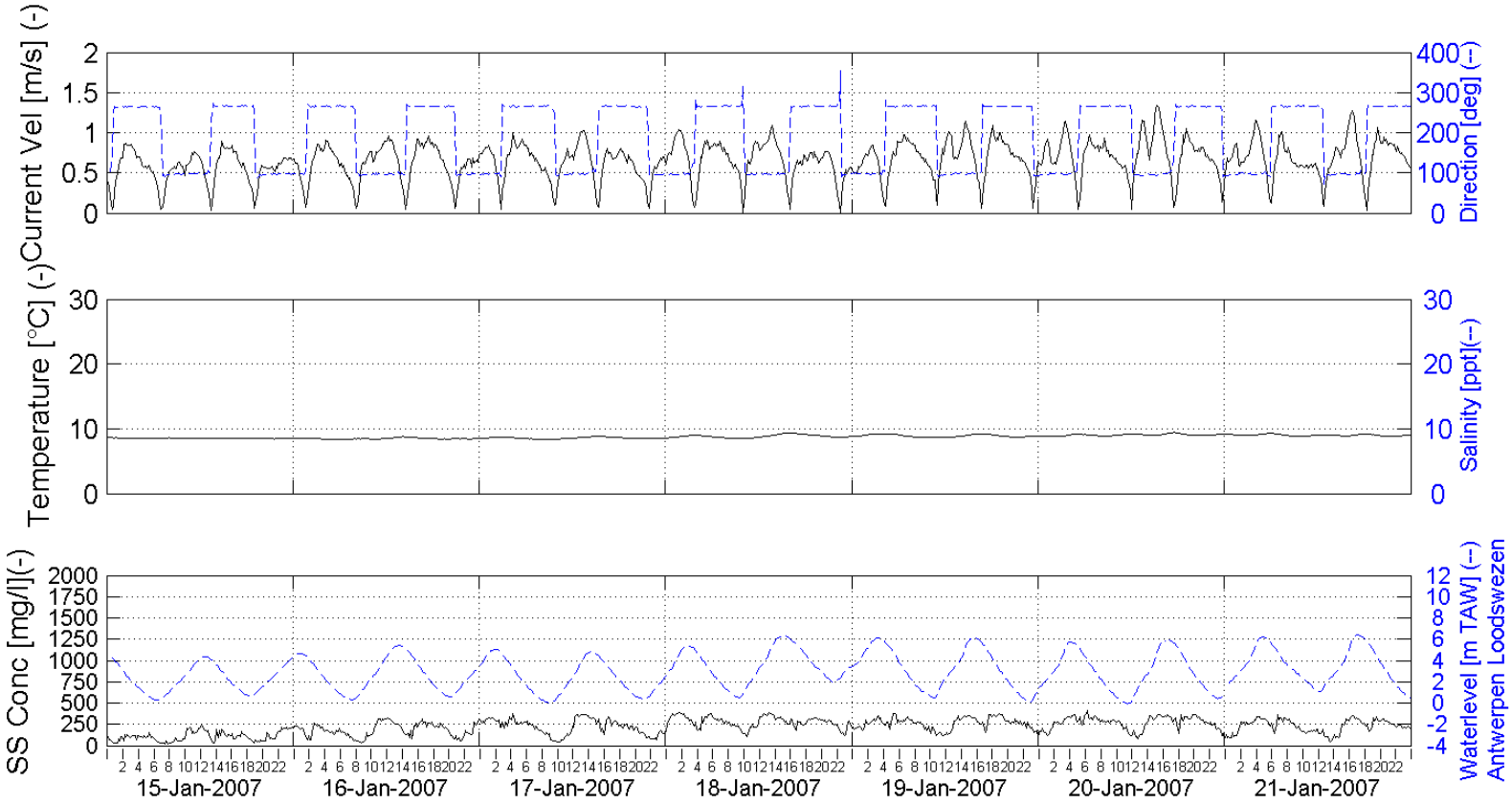
In Association with:

GEMS

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 3 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

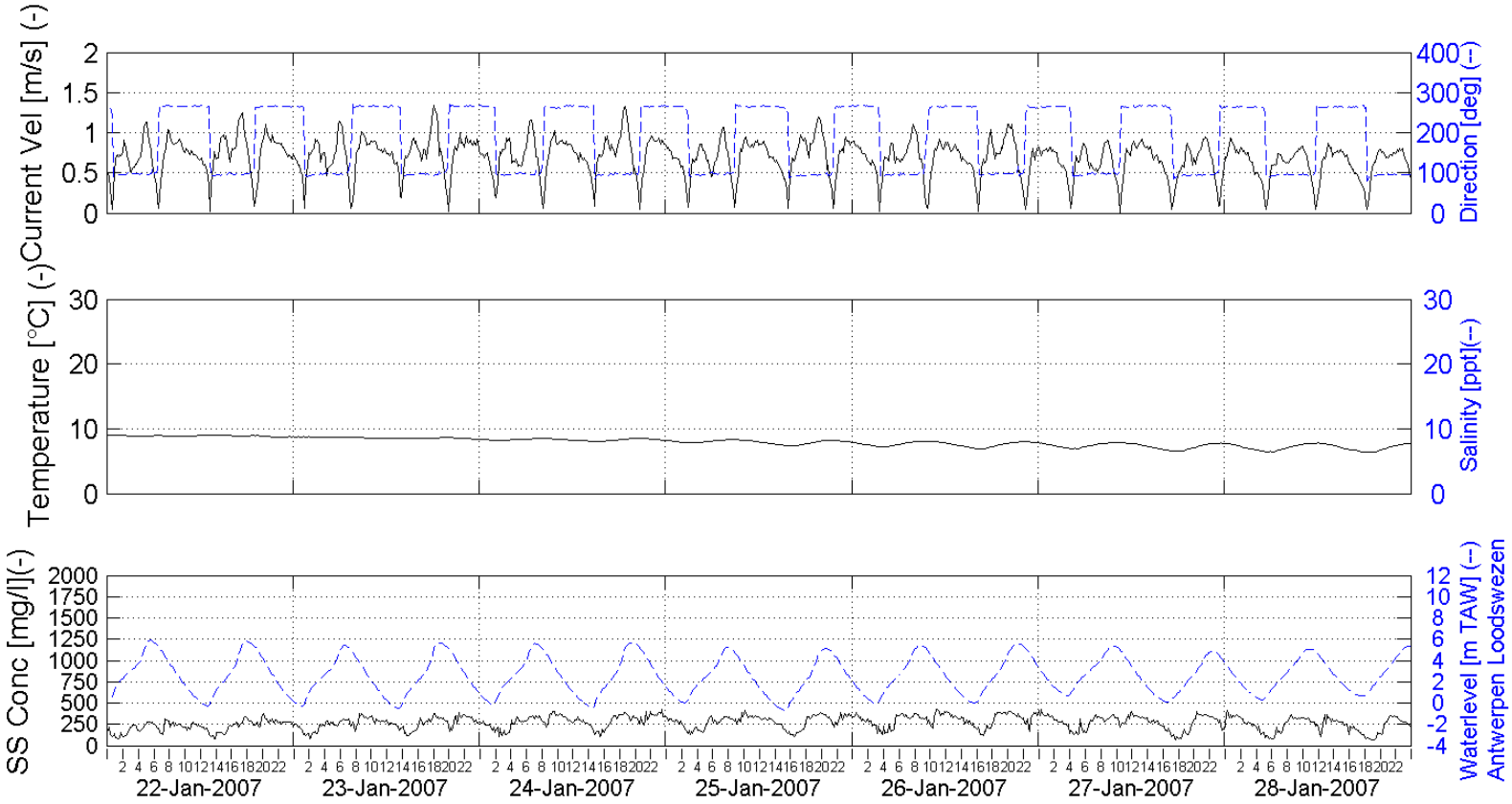
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 4 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

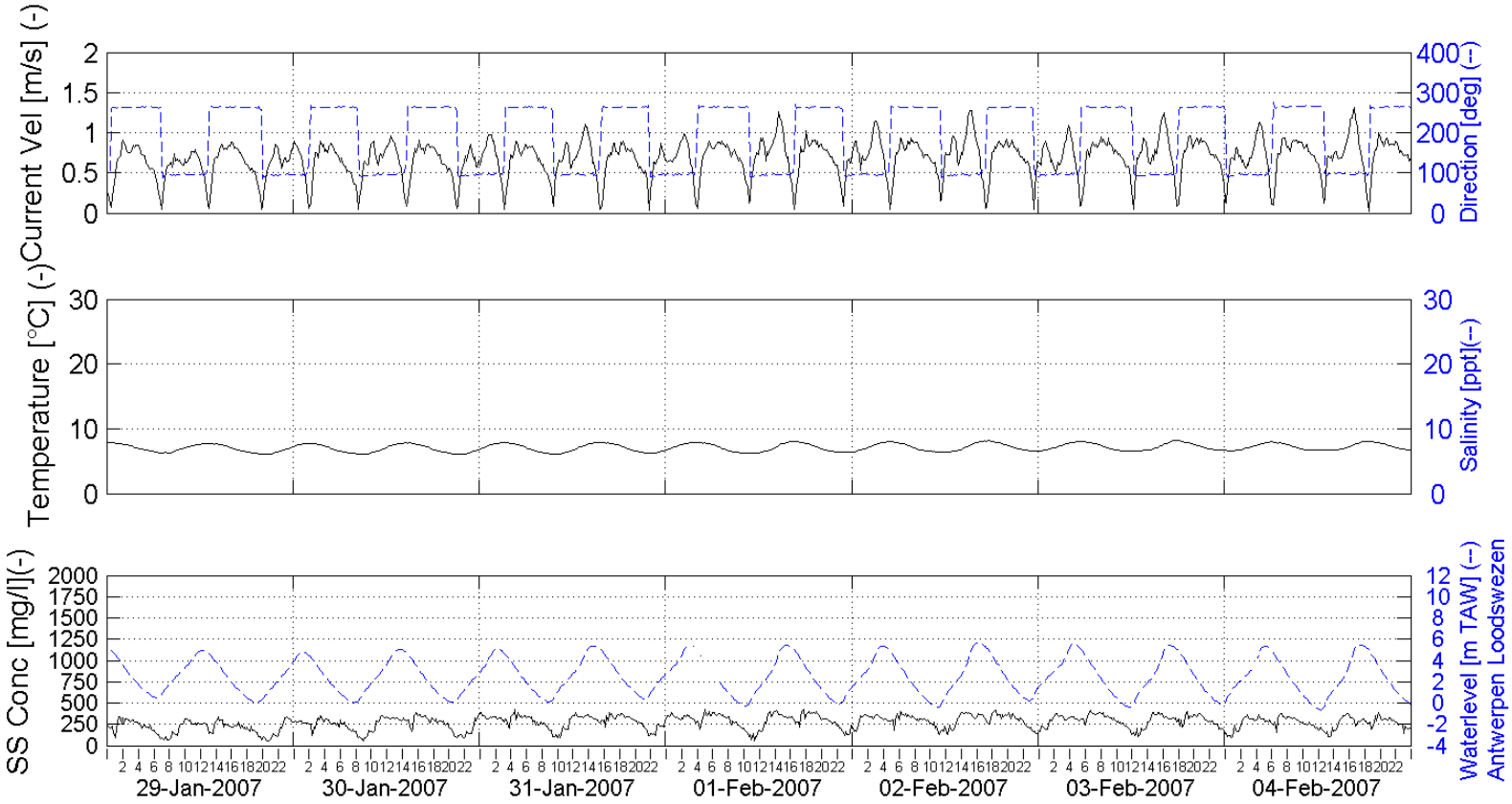
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 5 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

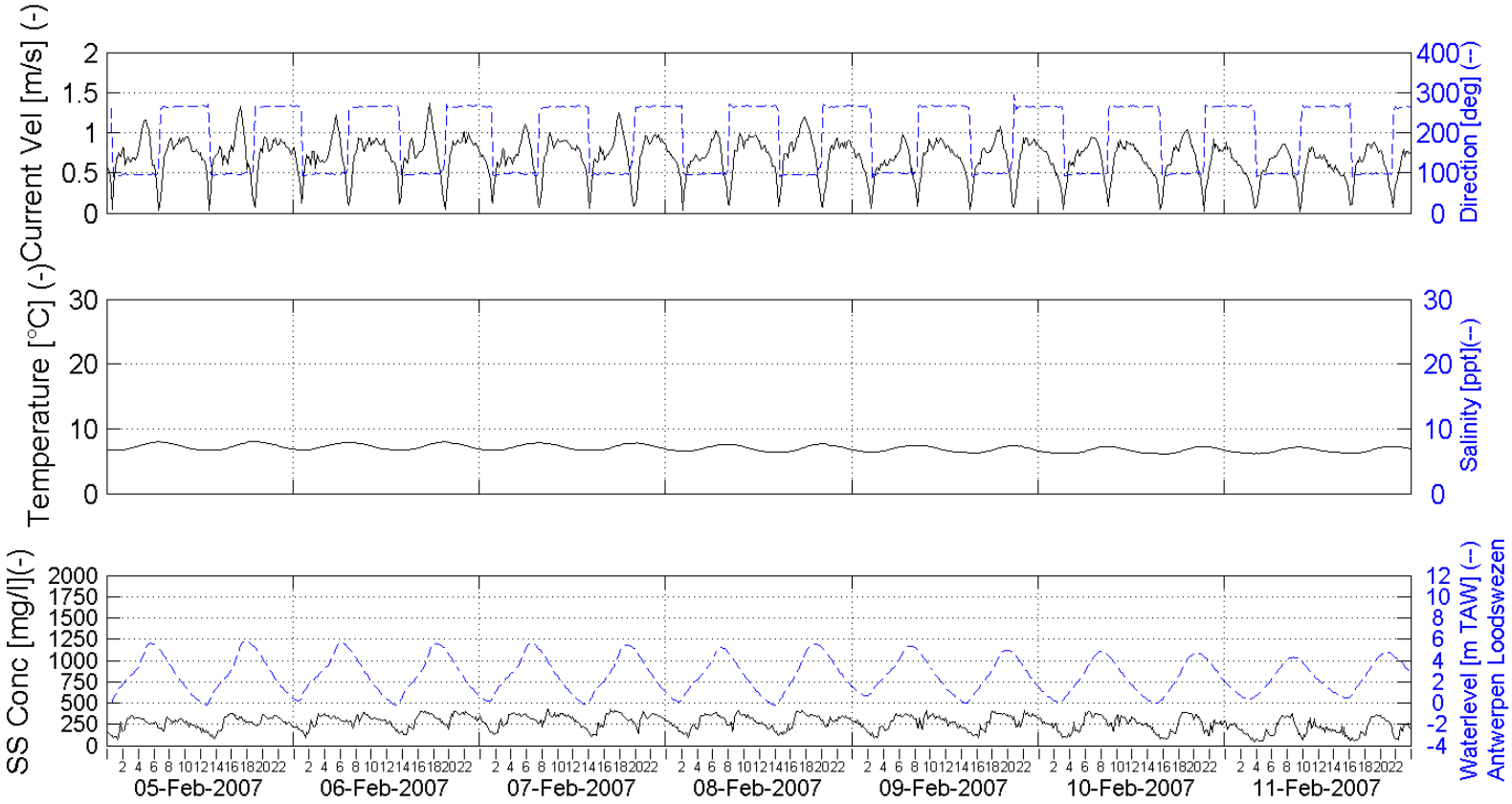
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 6 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

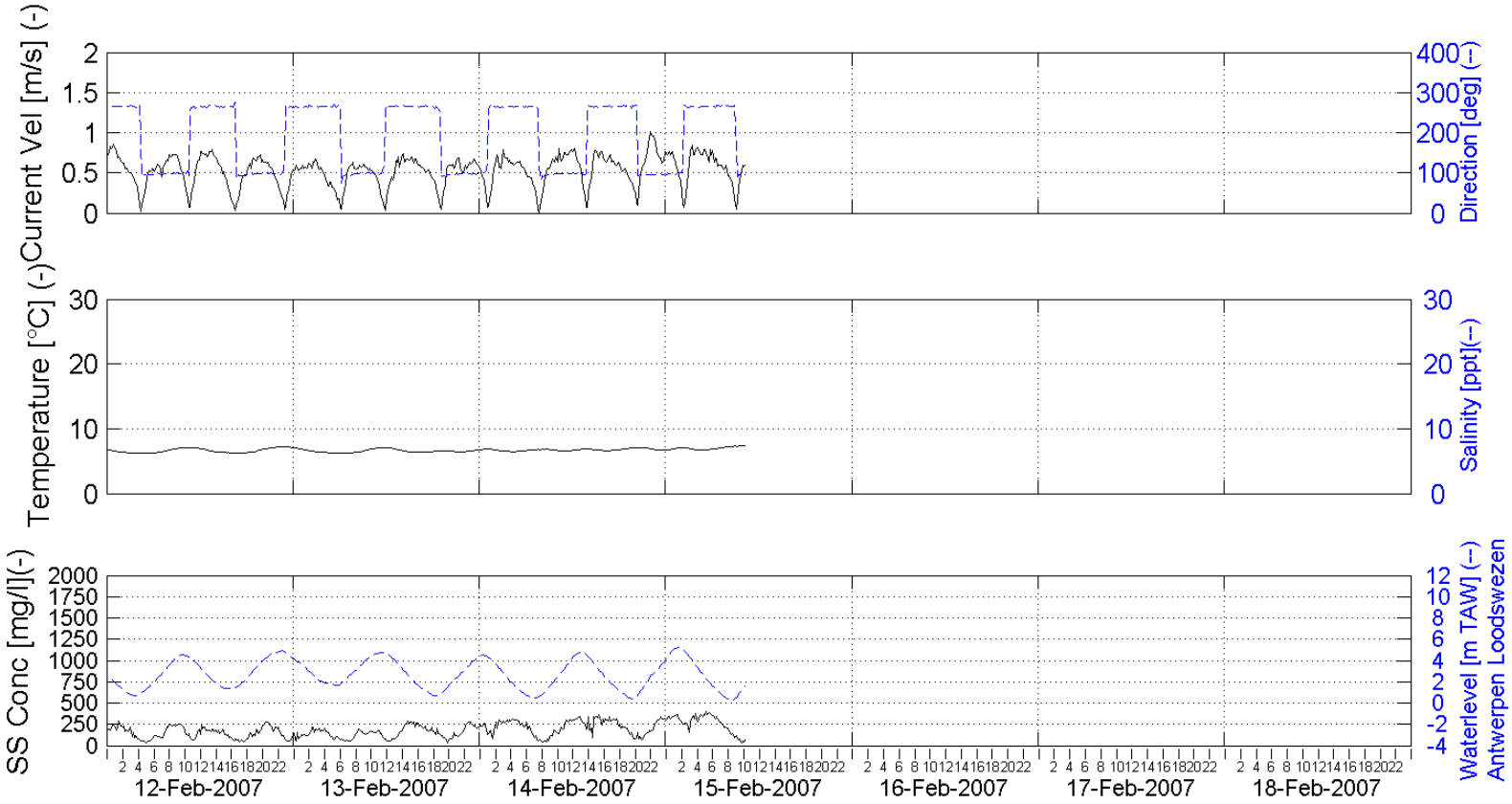
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 7 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

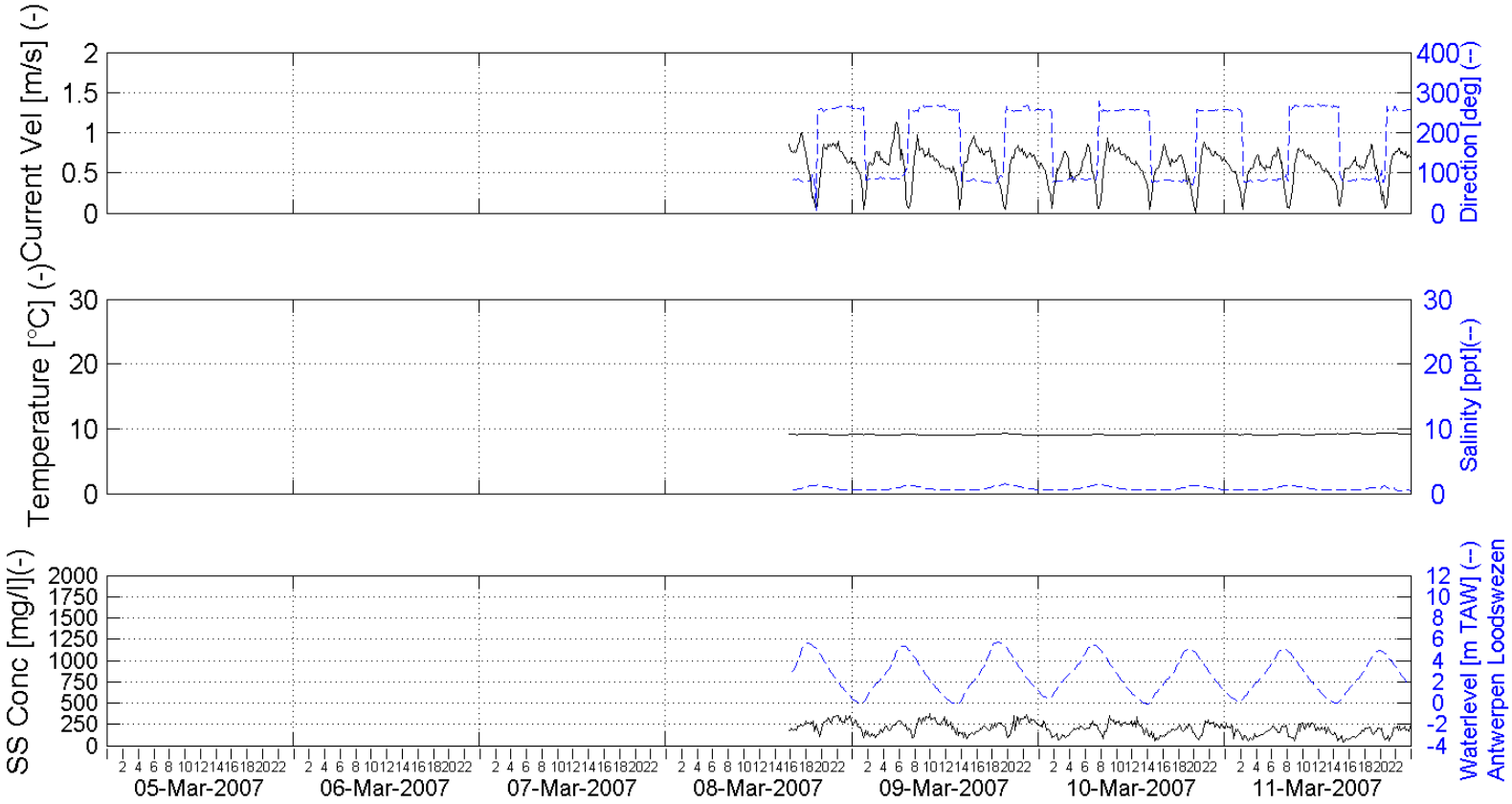
In Association with:

GEMS

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 10 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

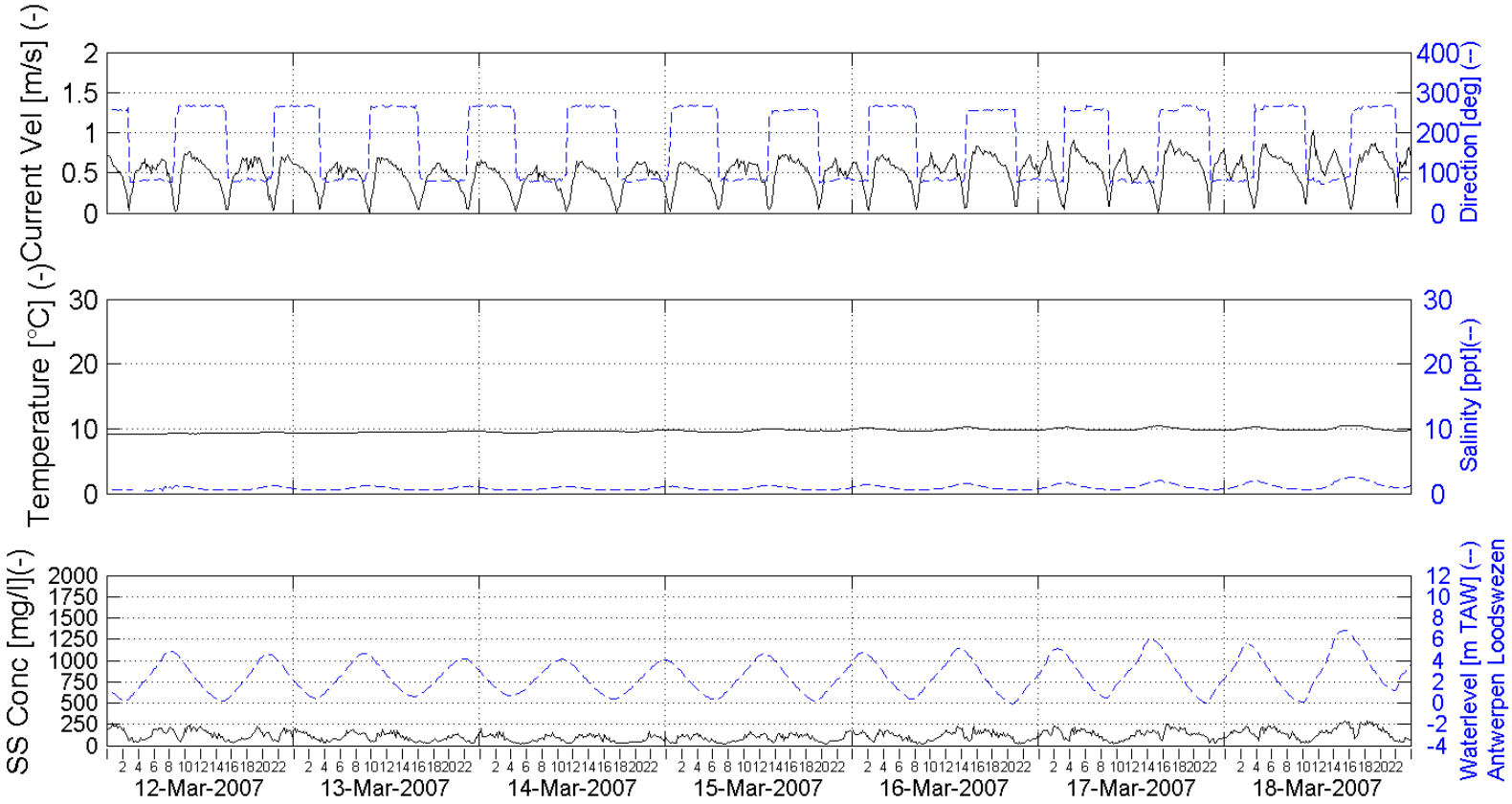
In Association with:

GEMS

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 11 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

In Association with:

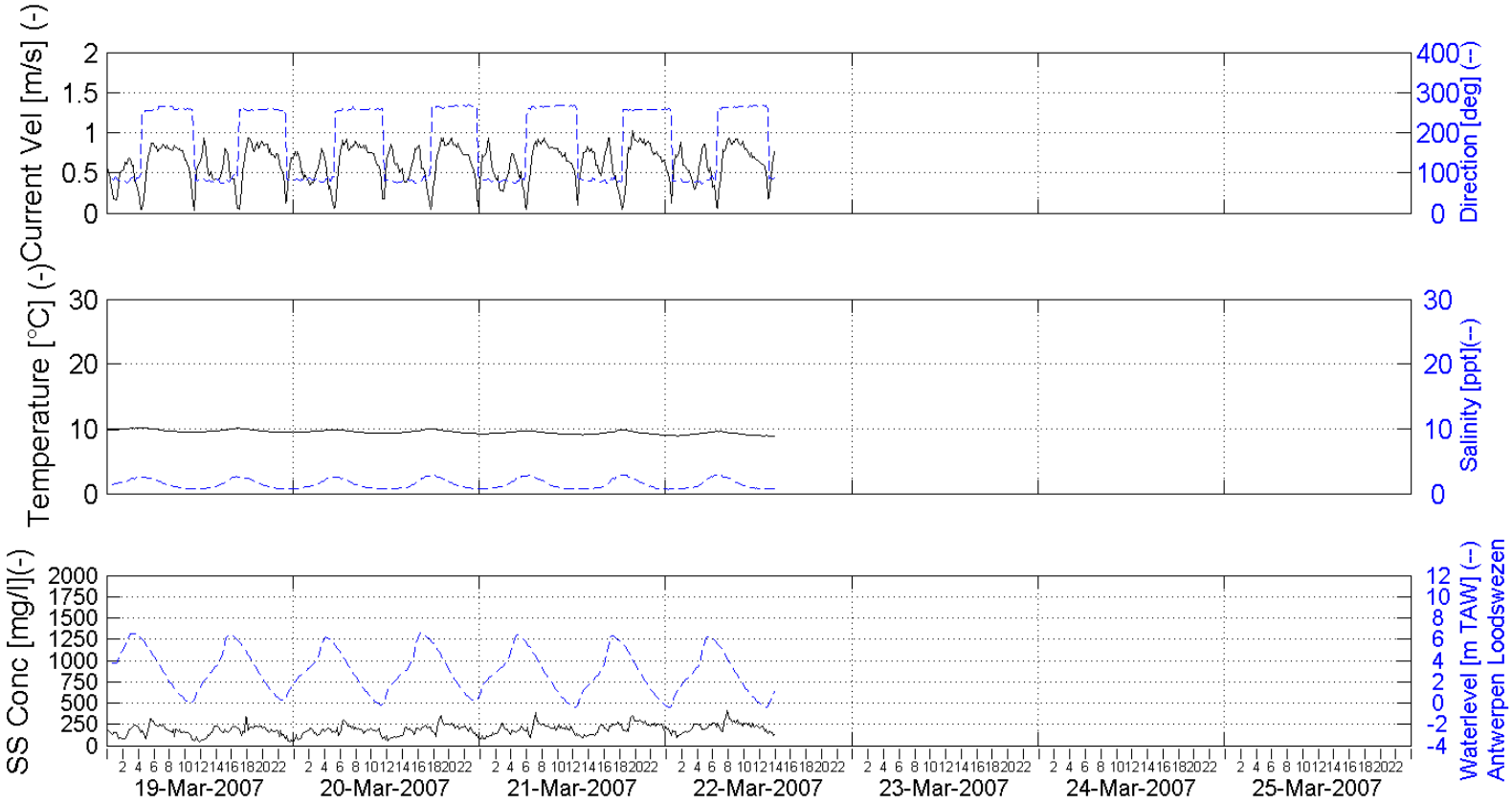
GEMS International

w.l | delft hydraulics

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 12 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 4.5m above bottom (-2.3m TAW)

Processed by:

IMDC

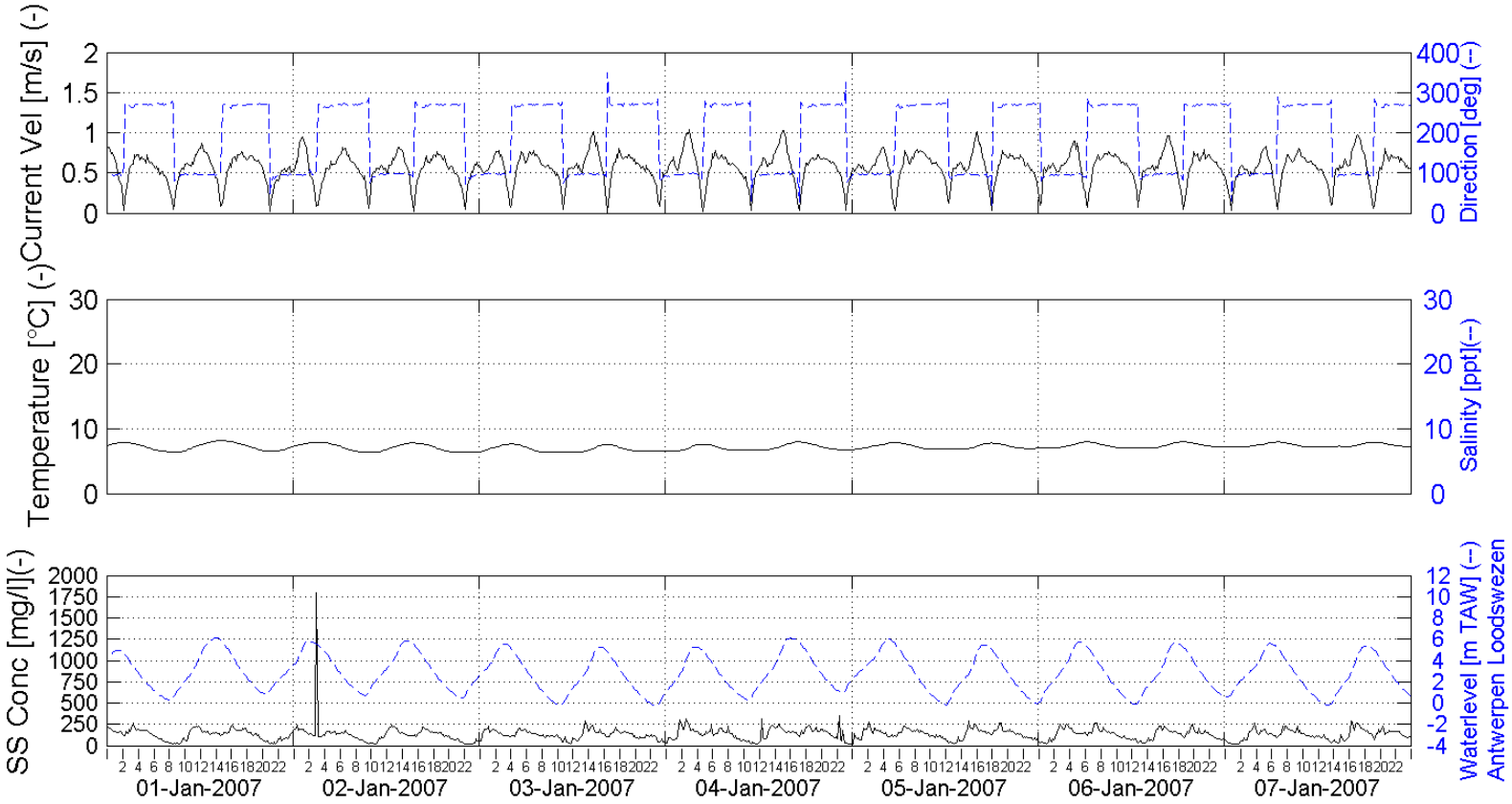
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 1 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

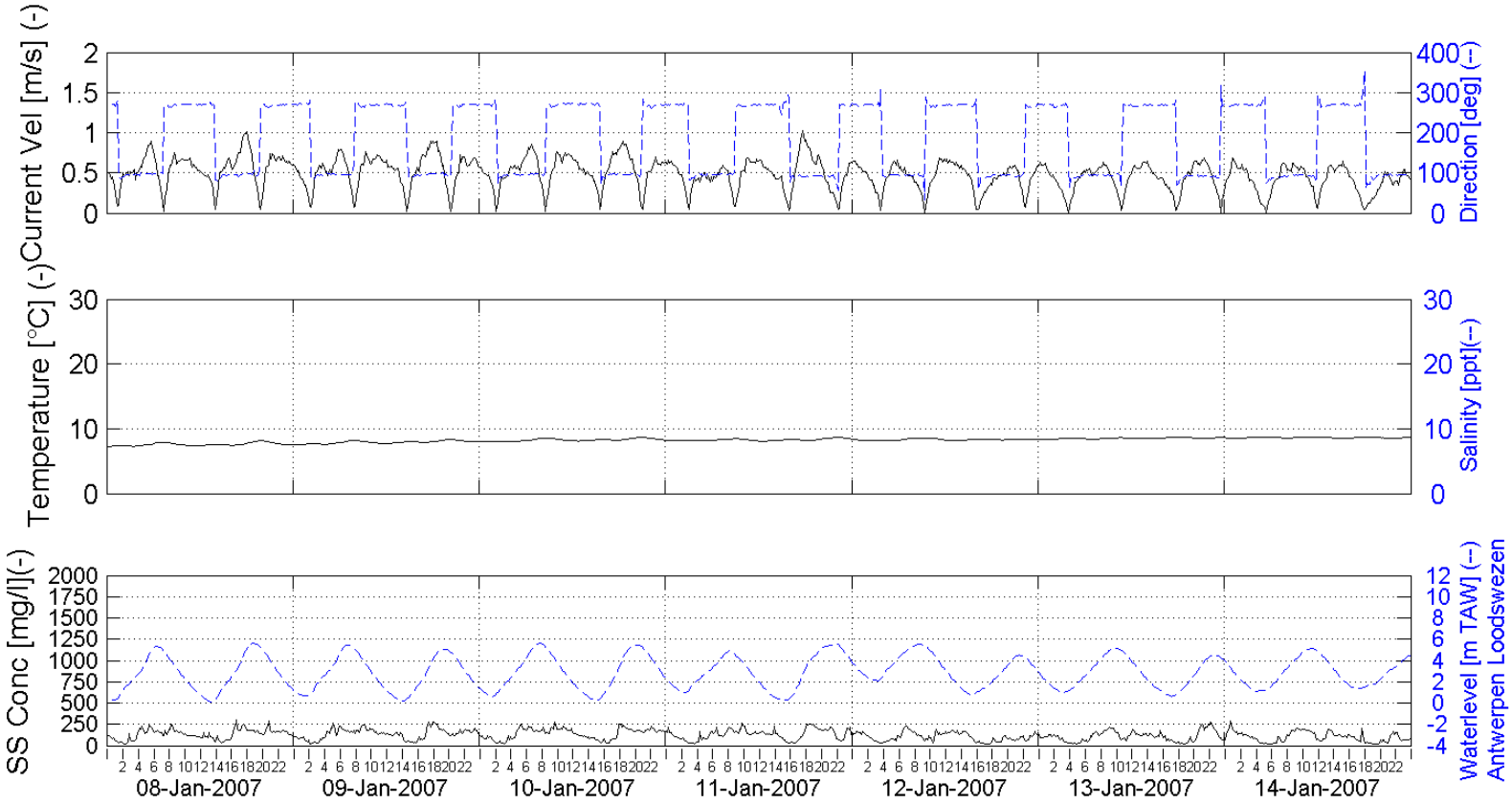
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 2 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

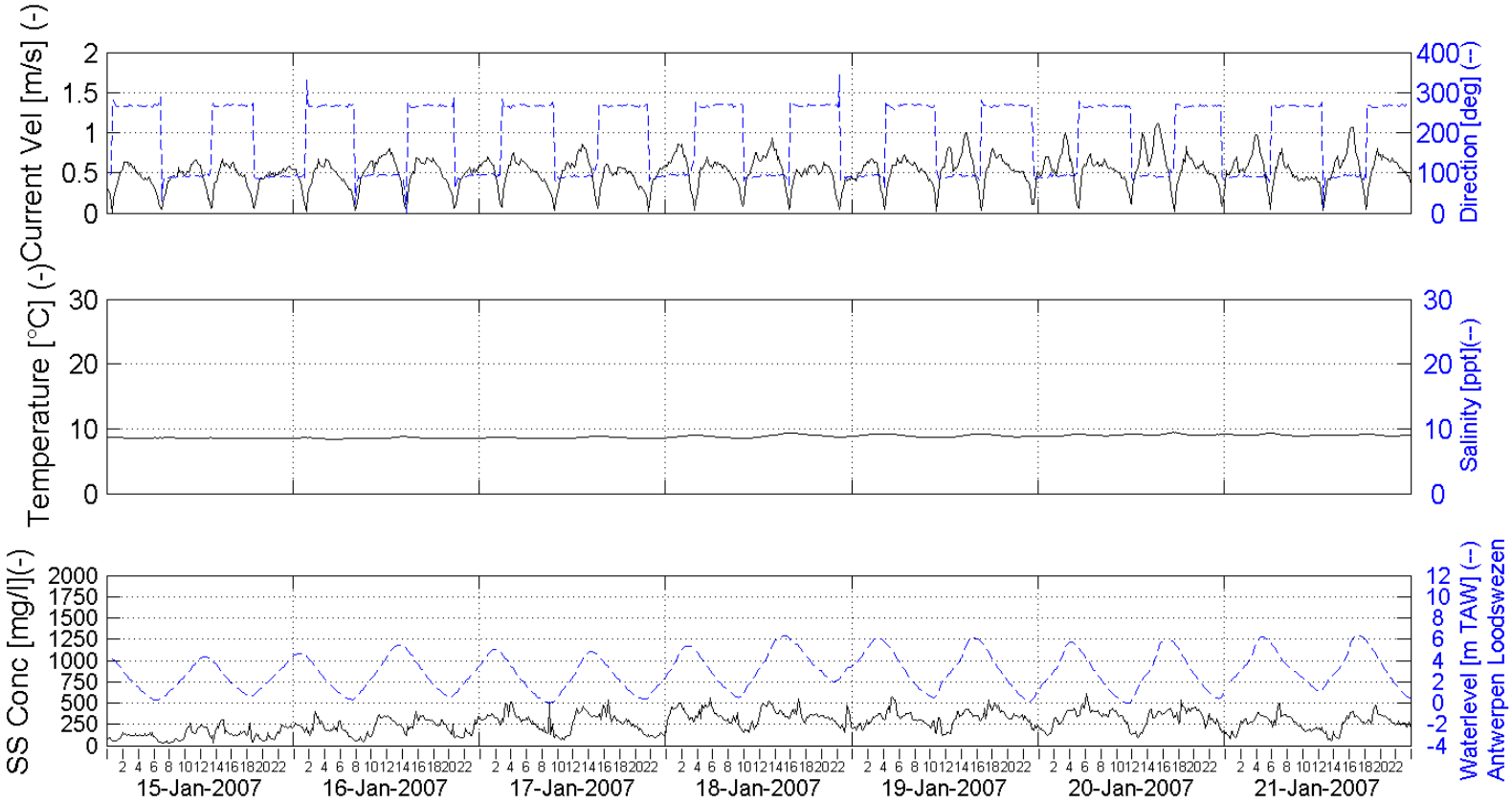
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 3 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

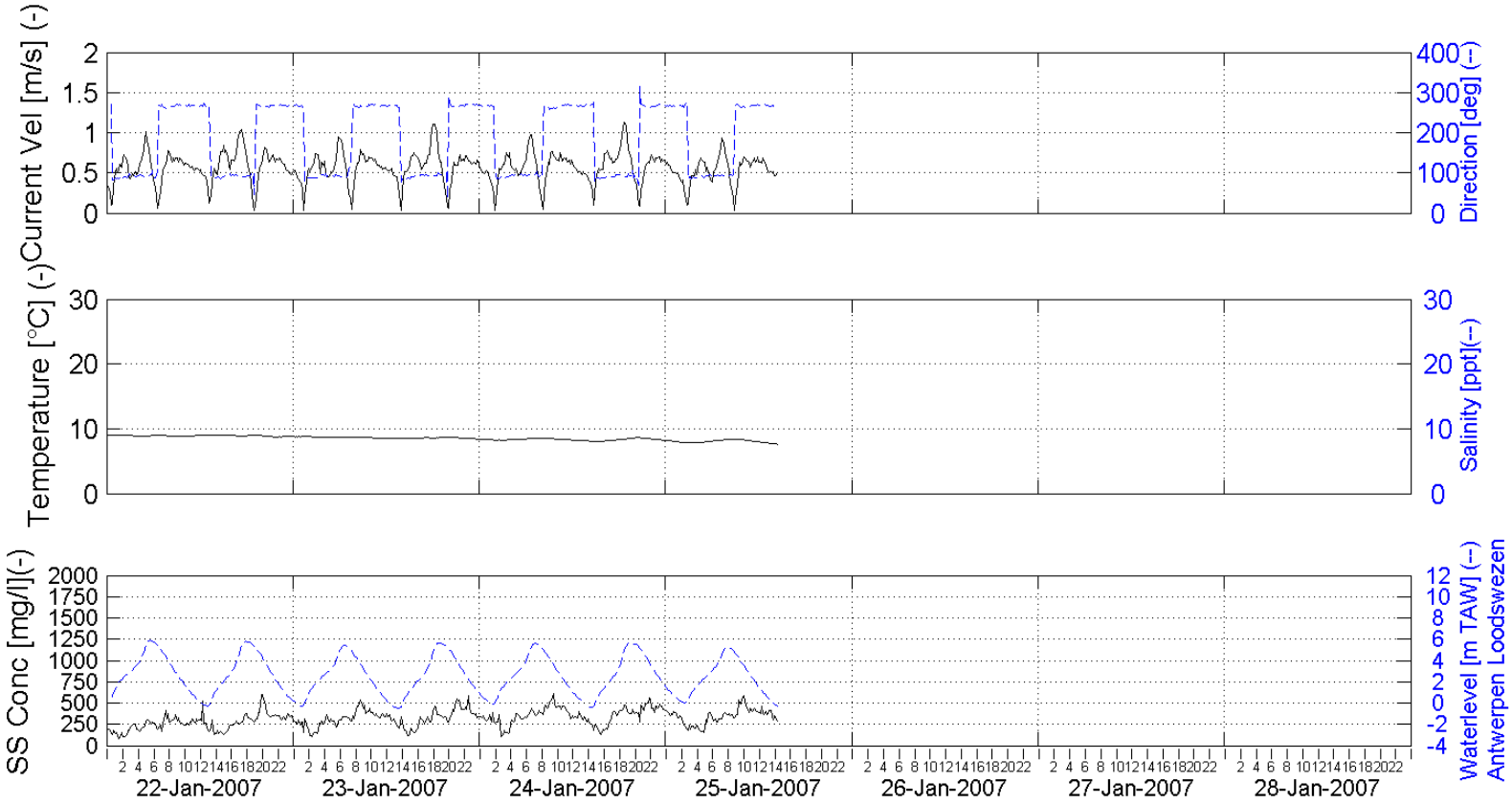
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 4 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

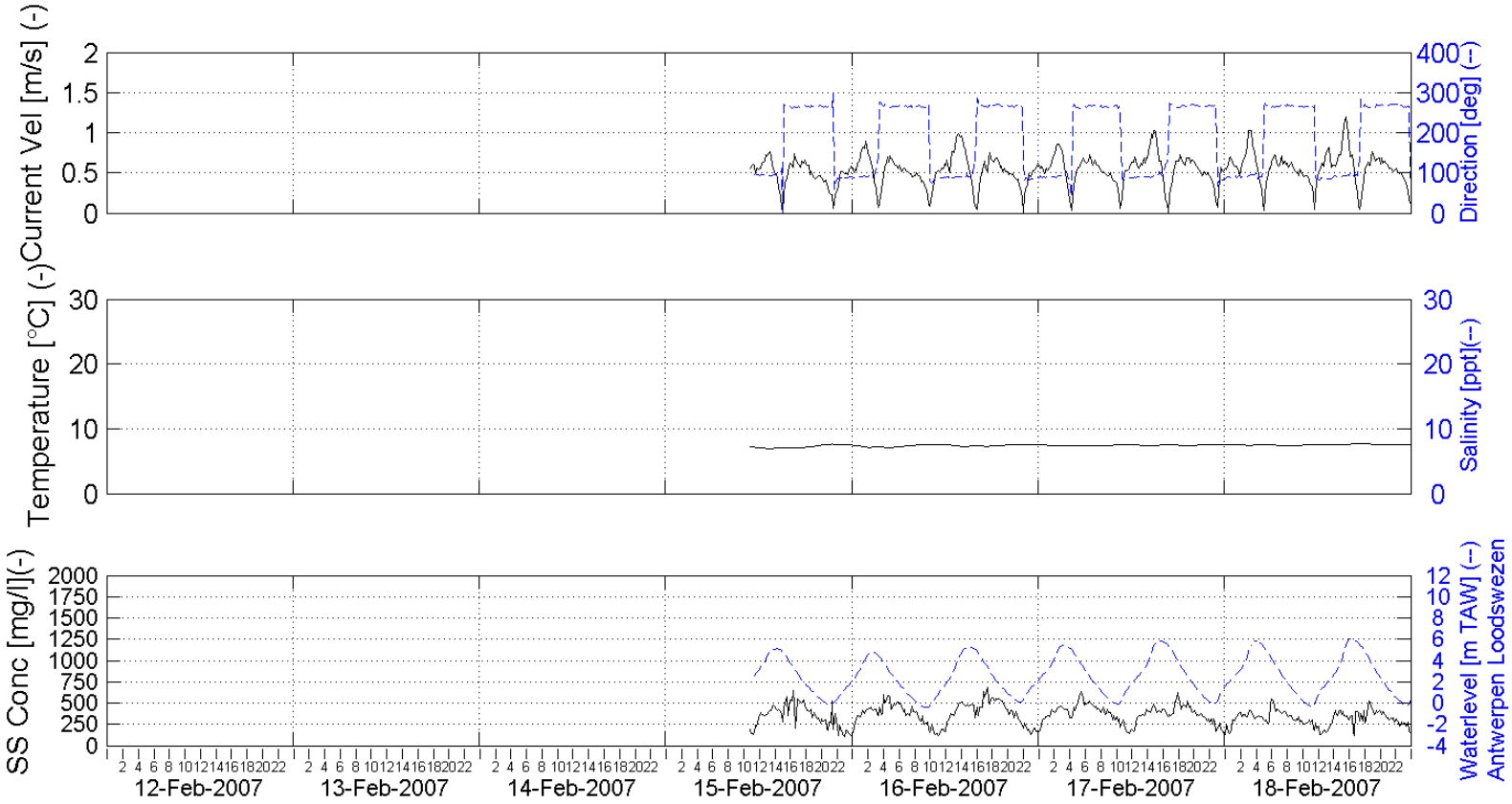
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 7 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

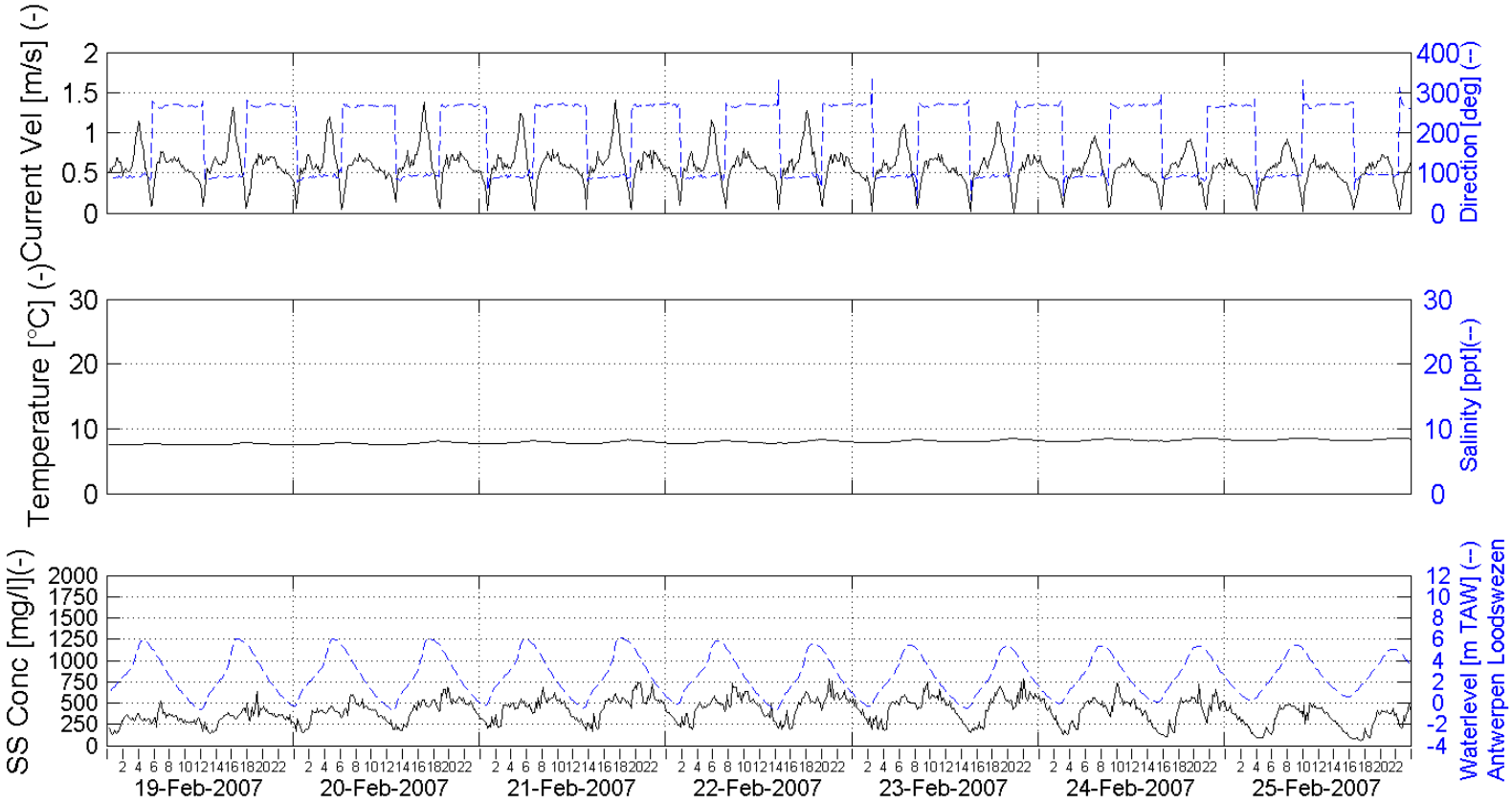
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 8 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

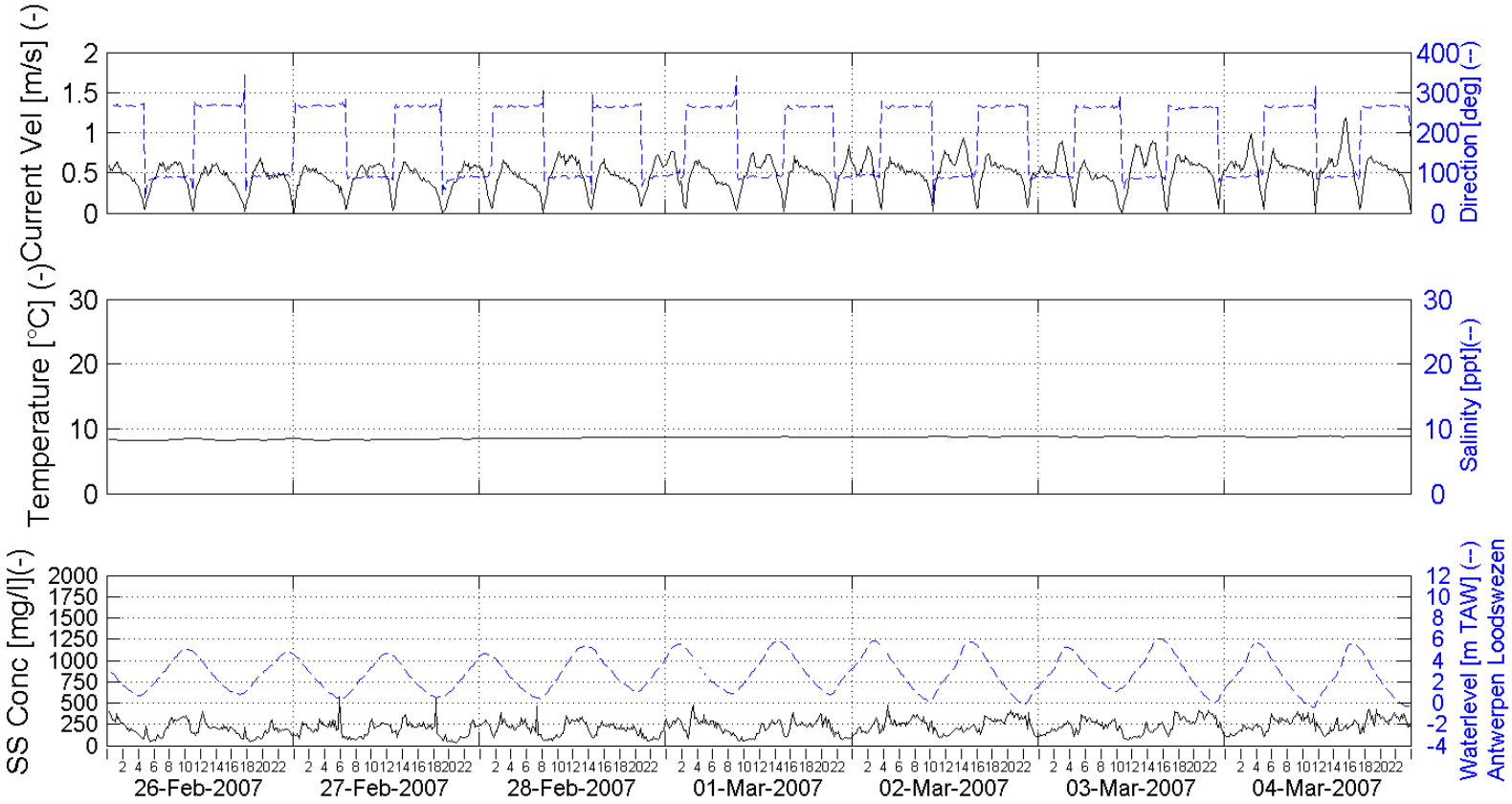
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 9 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

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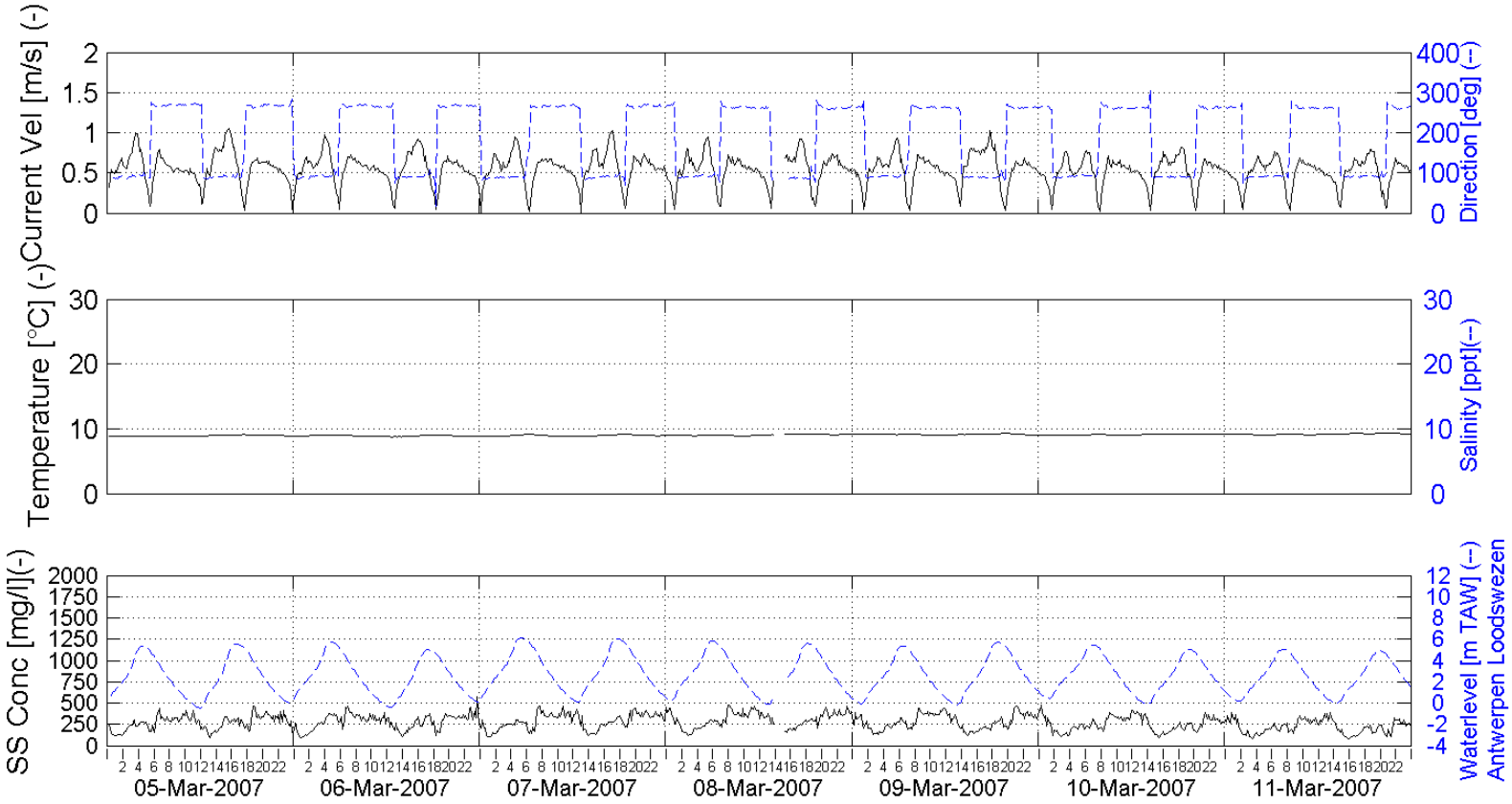
GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 10 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

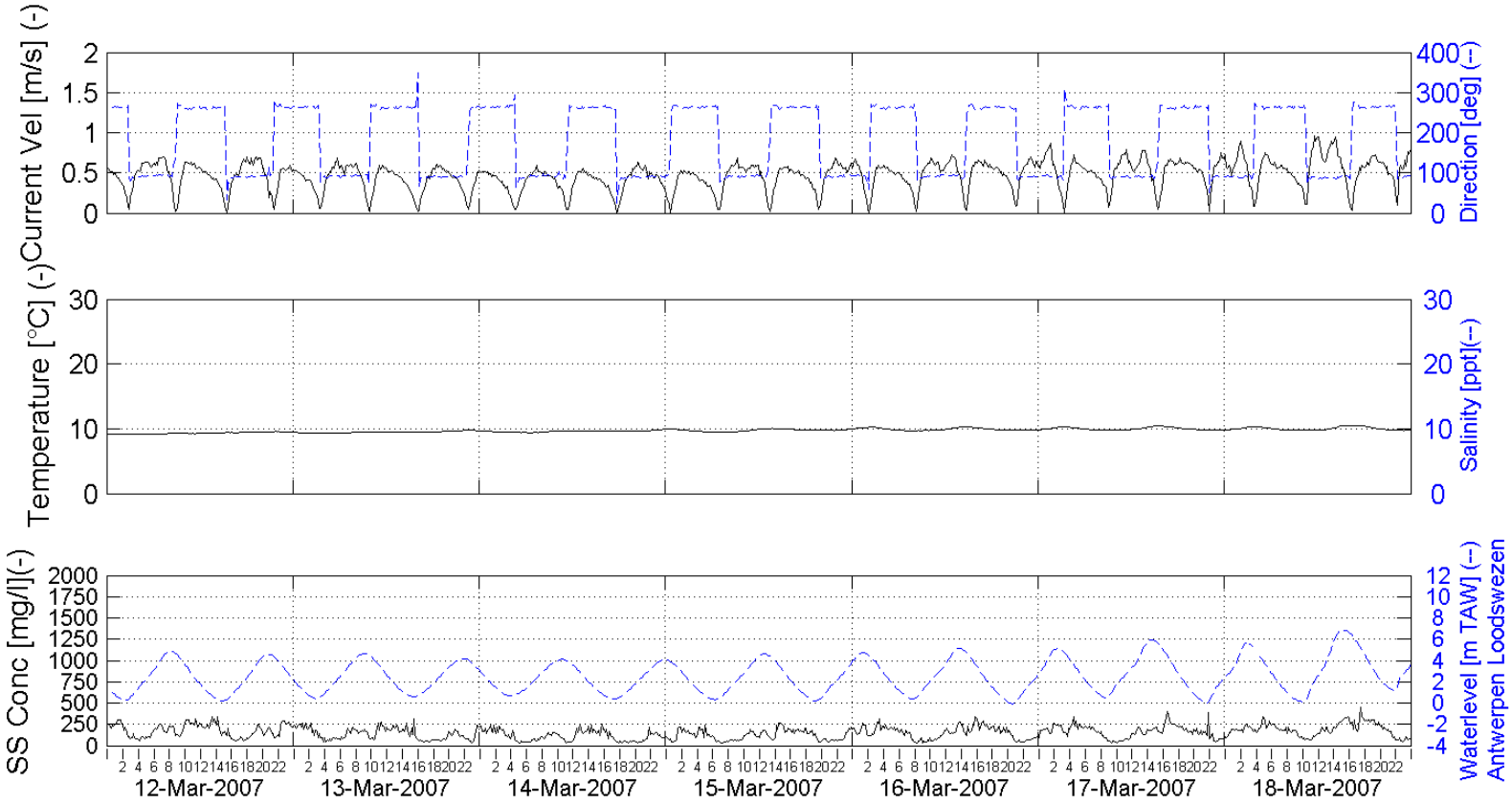
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 11 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

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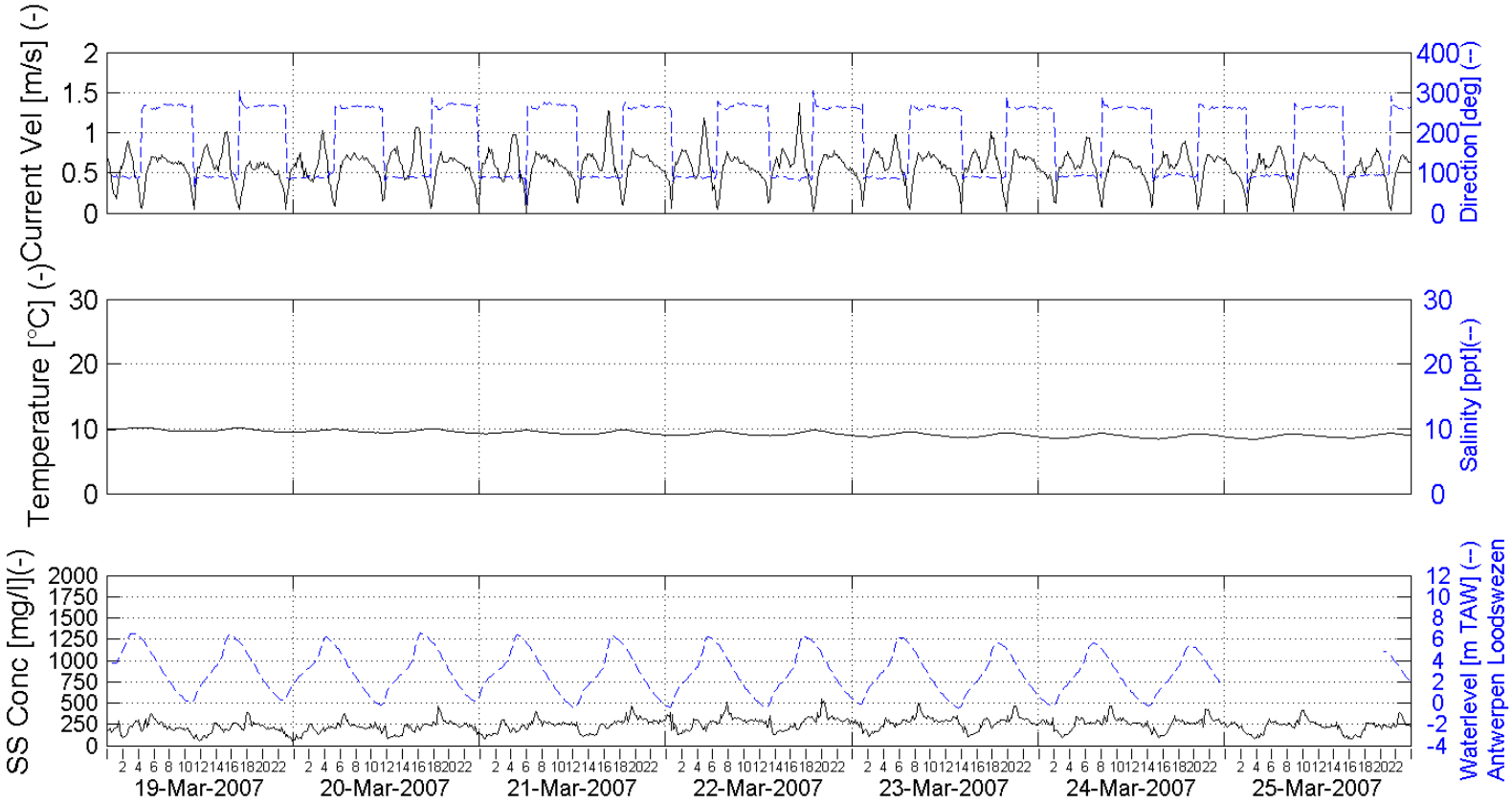
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 12 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

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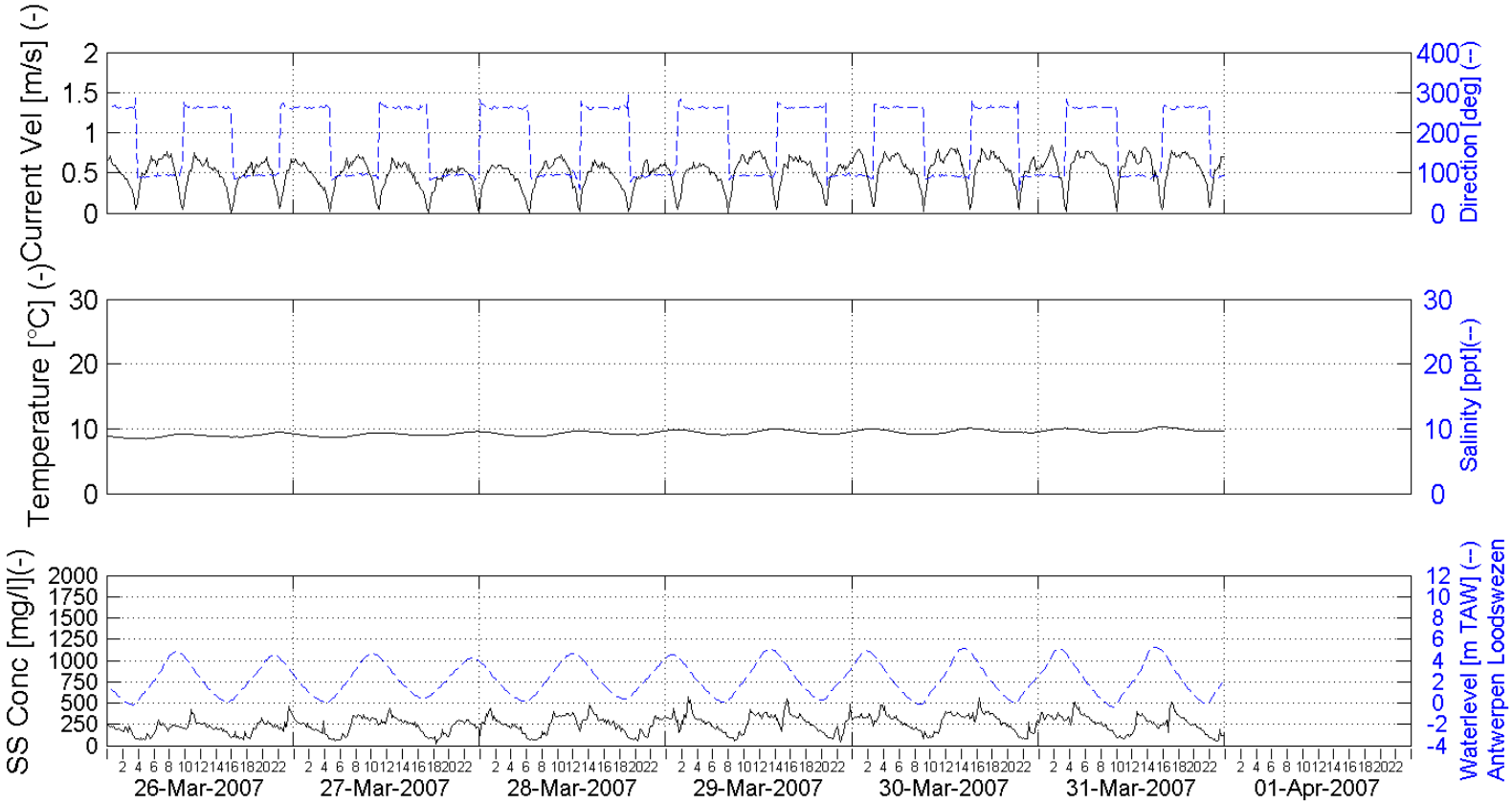
Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 13 - 2007



Week series Current Velocity, Current Direction, Temperature, SS Concentration and Tide

Location:

Oosterweel (left bank) - 1m above bottom (-5.8m TAW)

Processed by:

IMDC

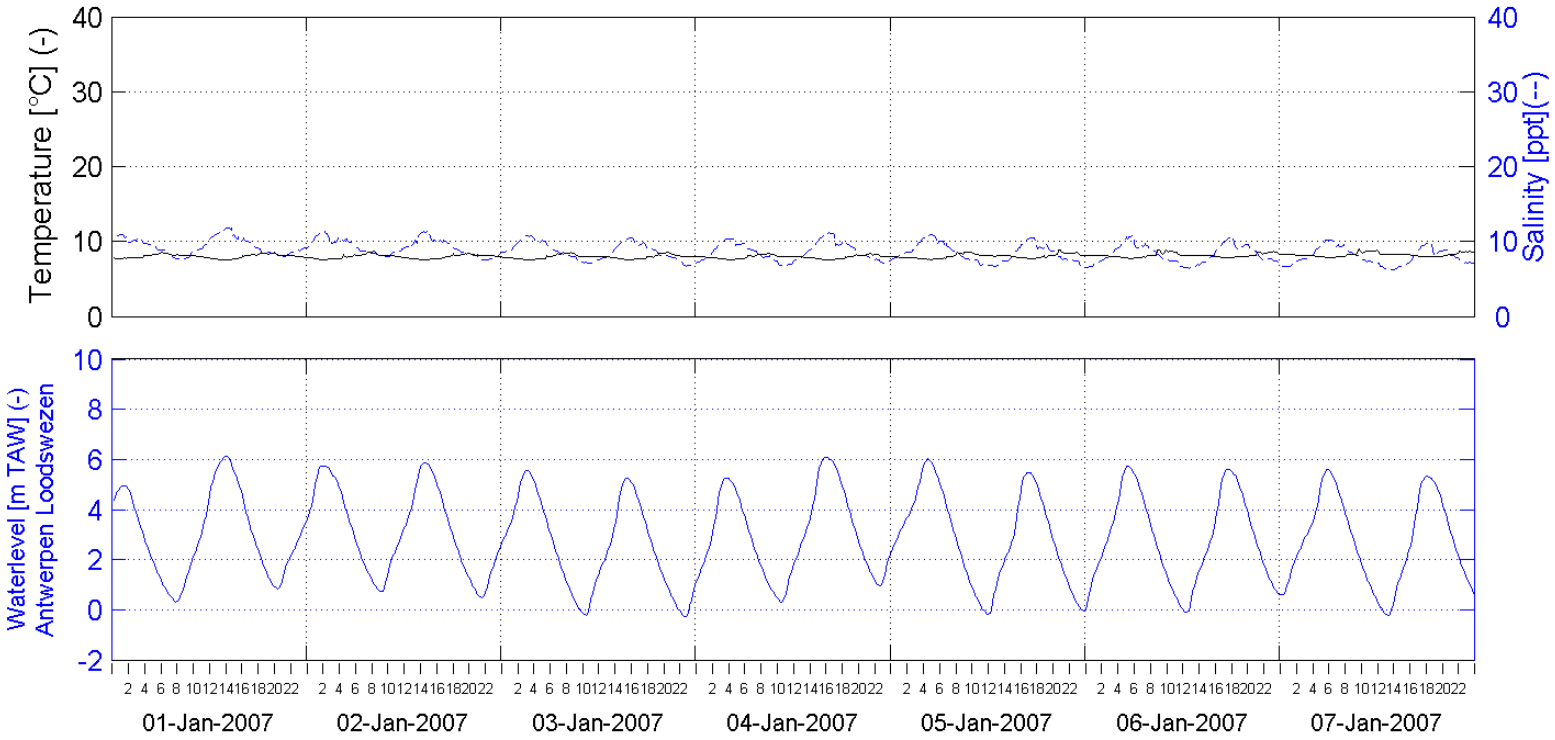
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 1 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

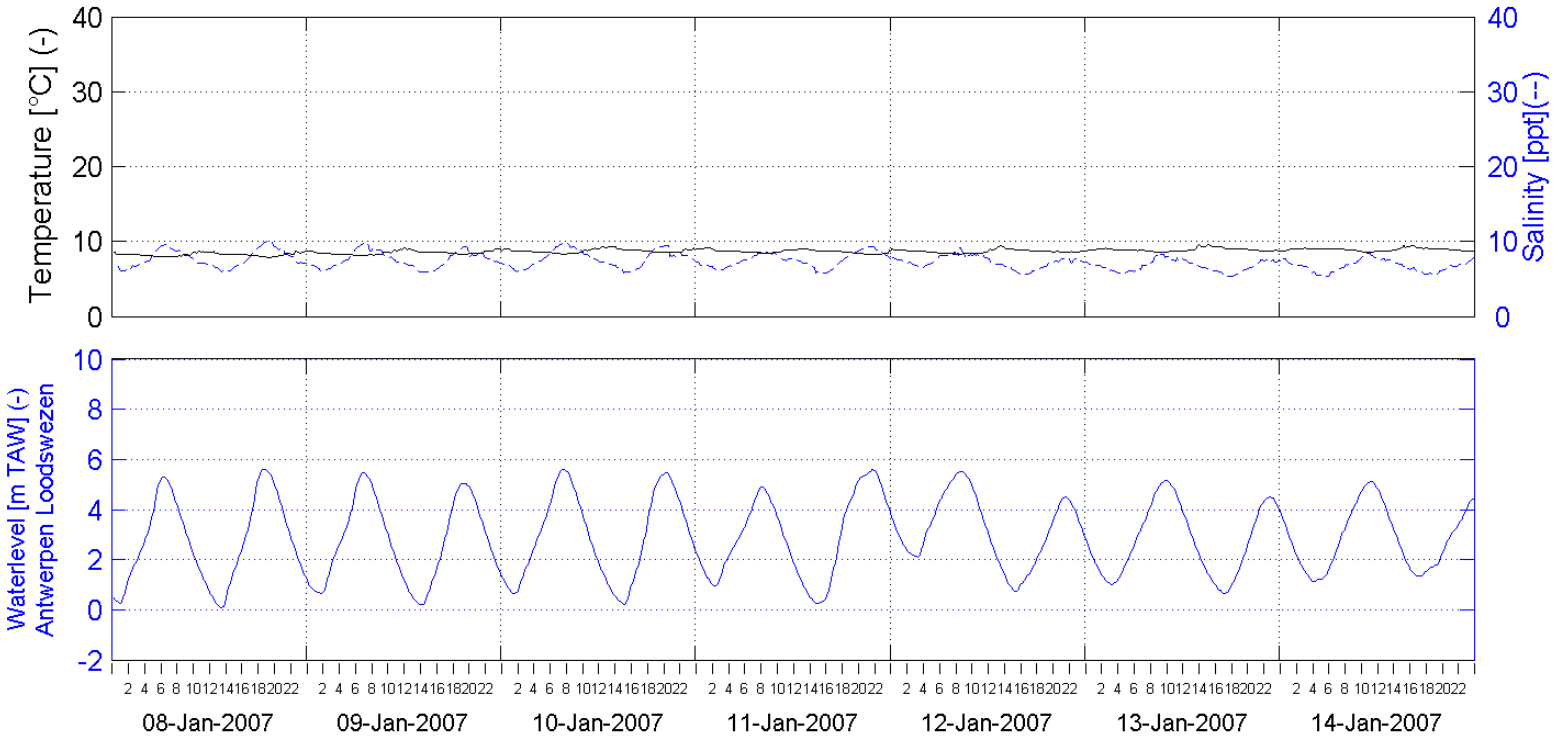
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 2 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

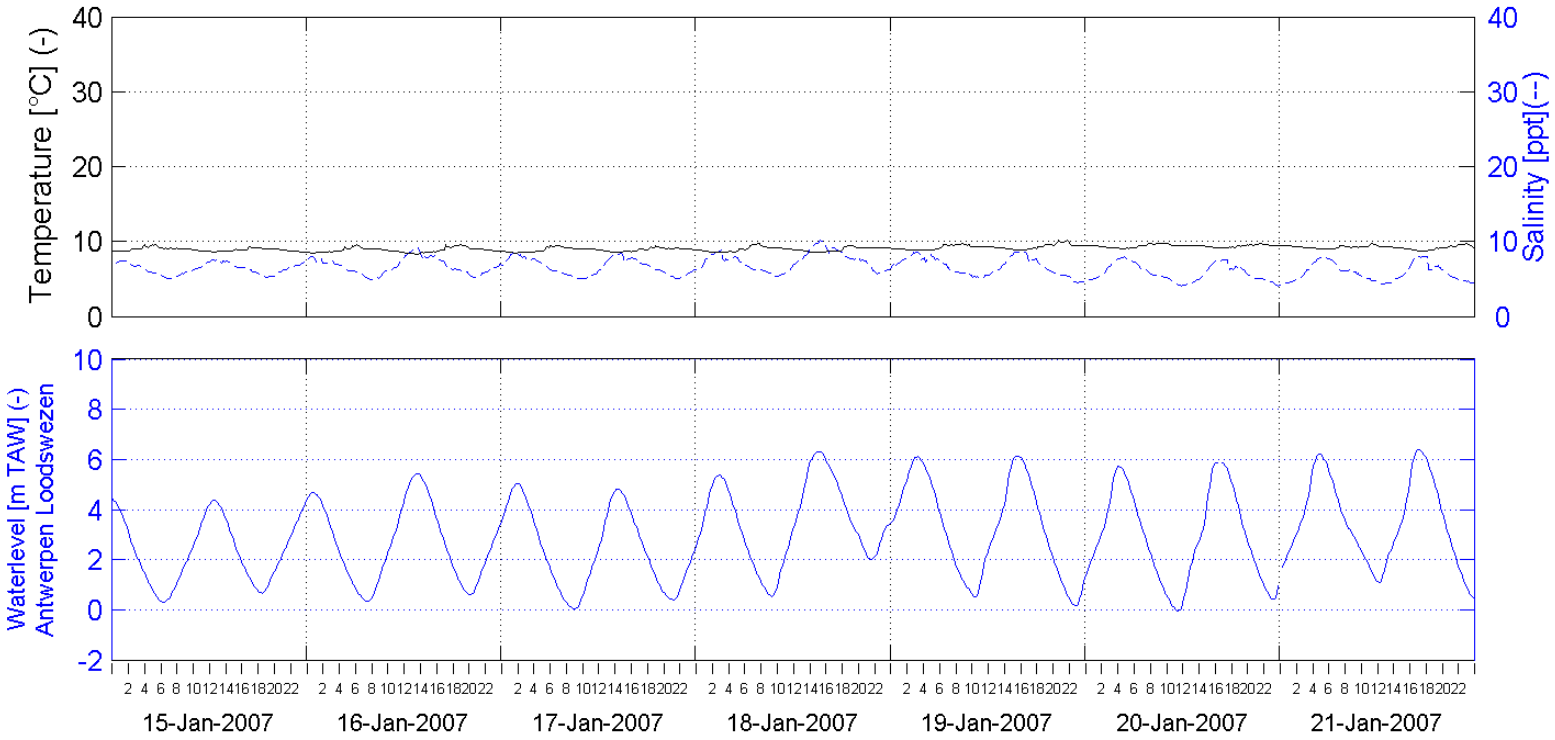
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 3 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

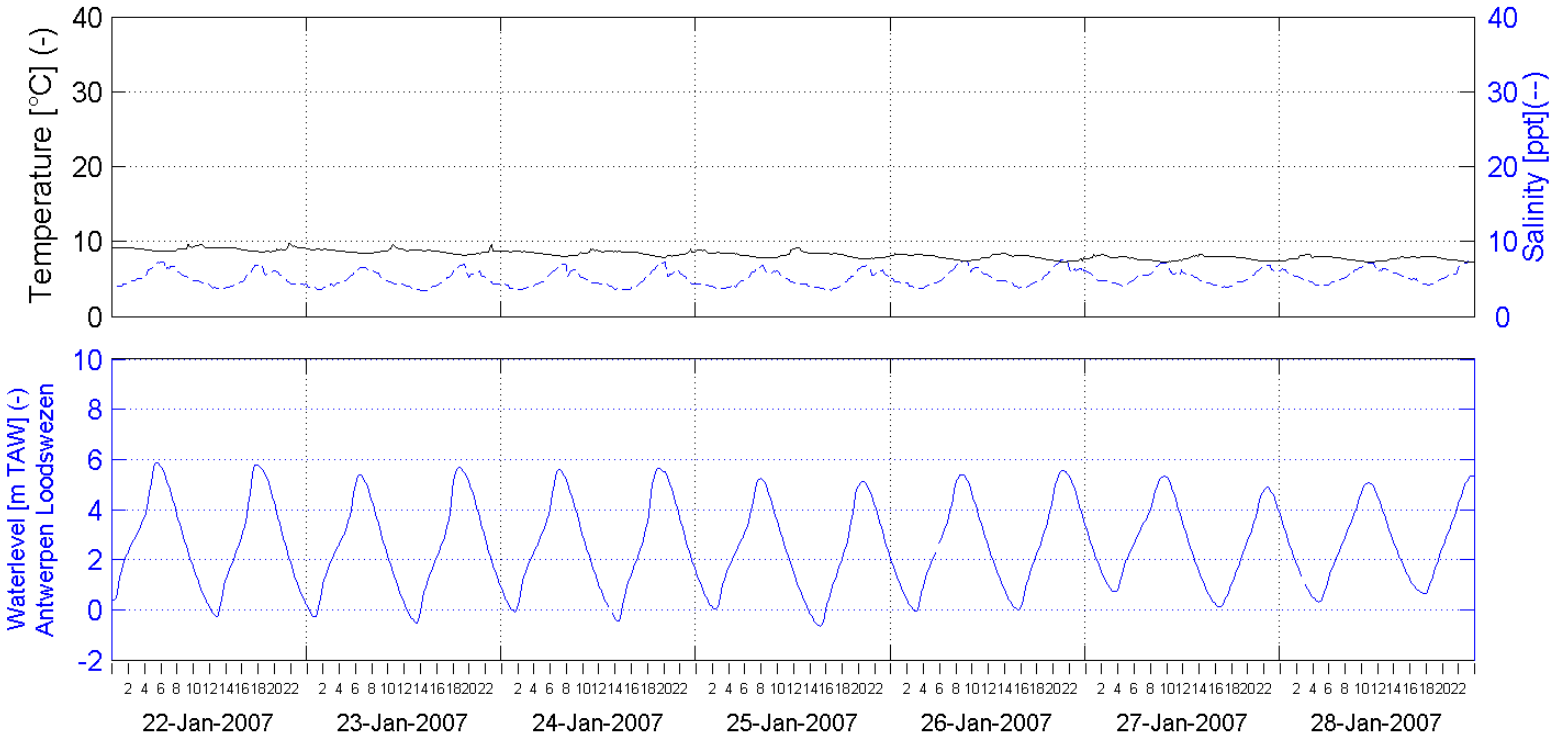
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 4 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

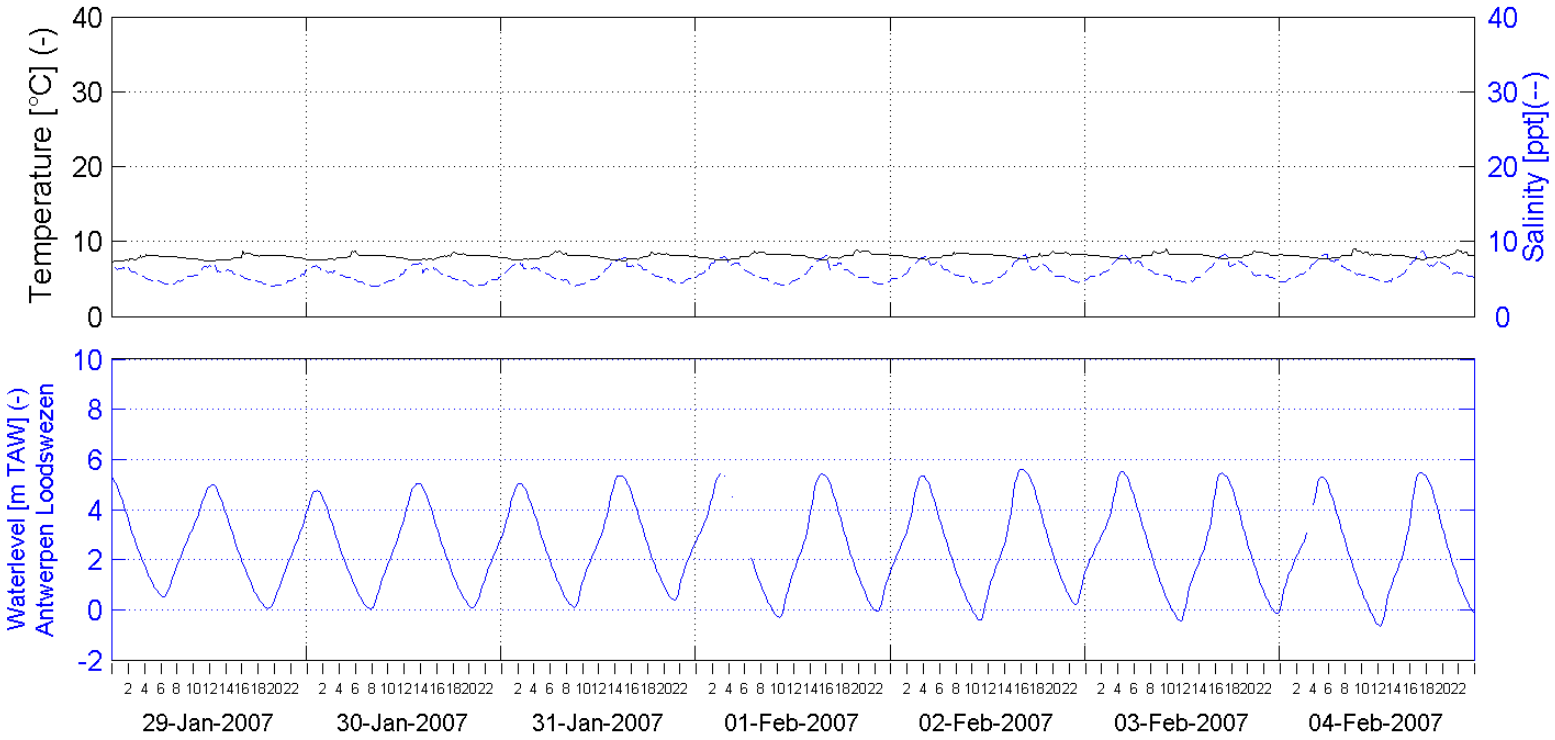
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 5 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

IMDC

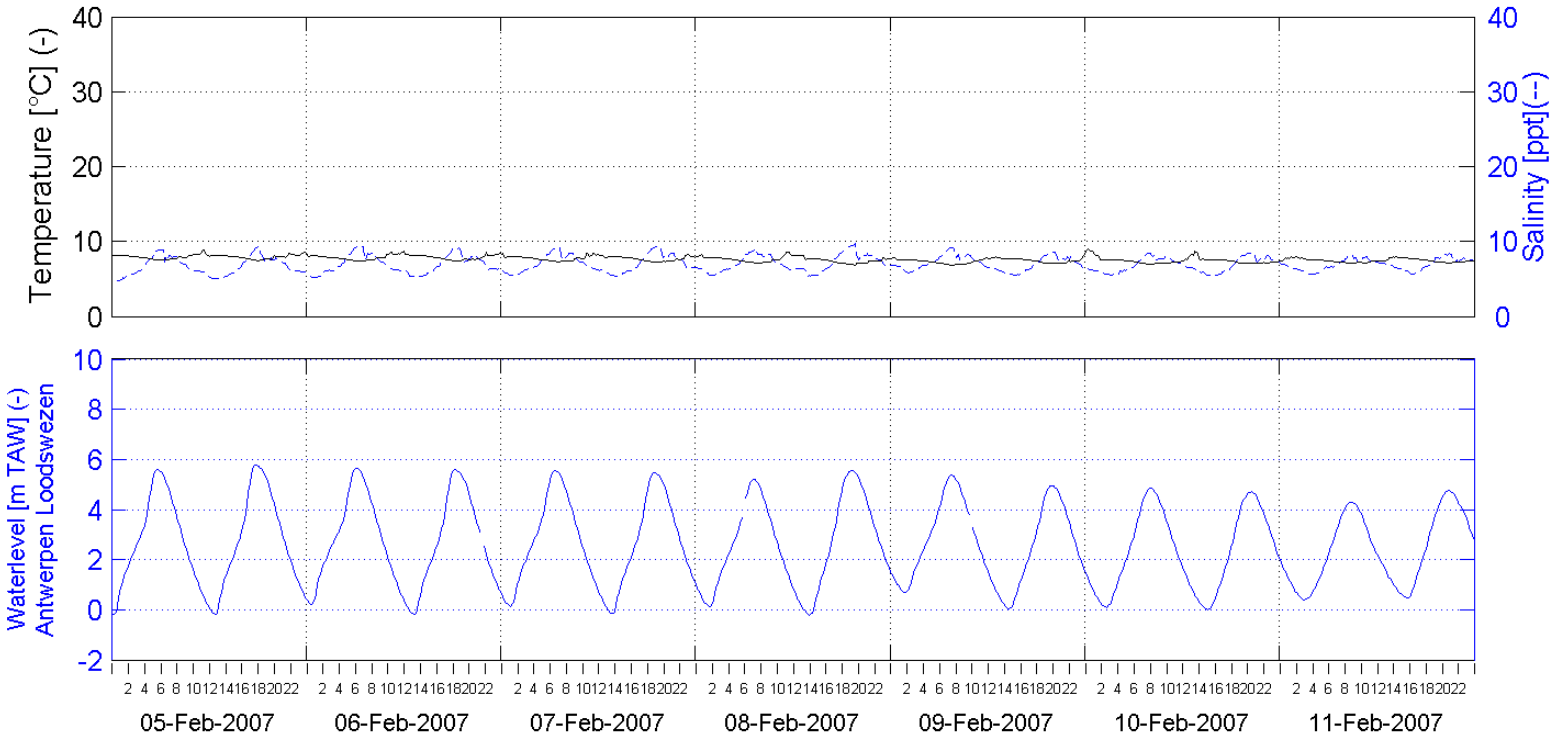
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 6 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

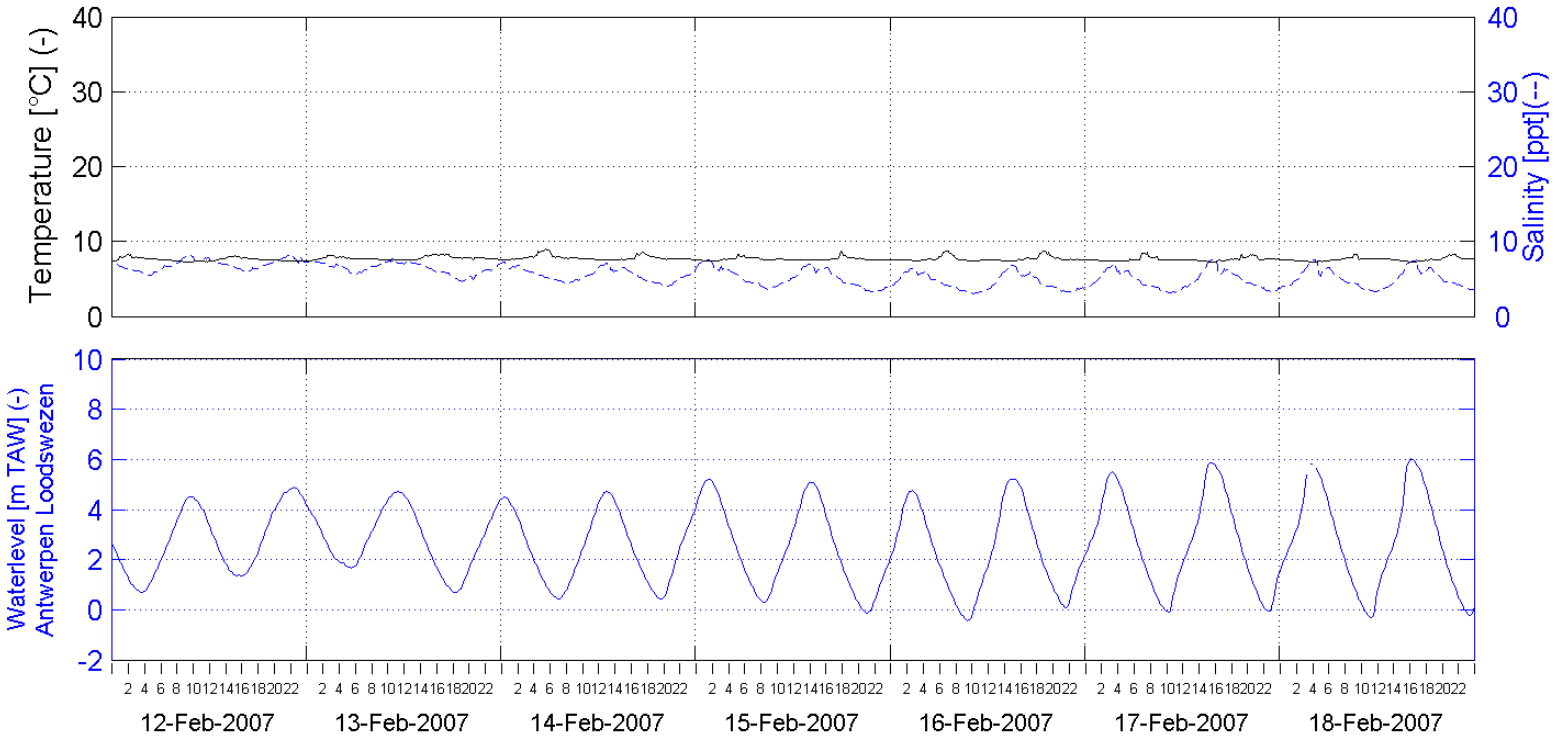
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 7 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

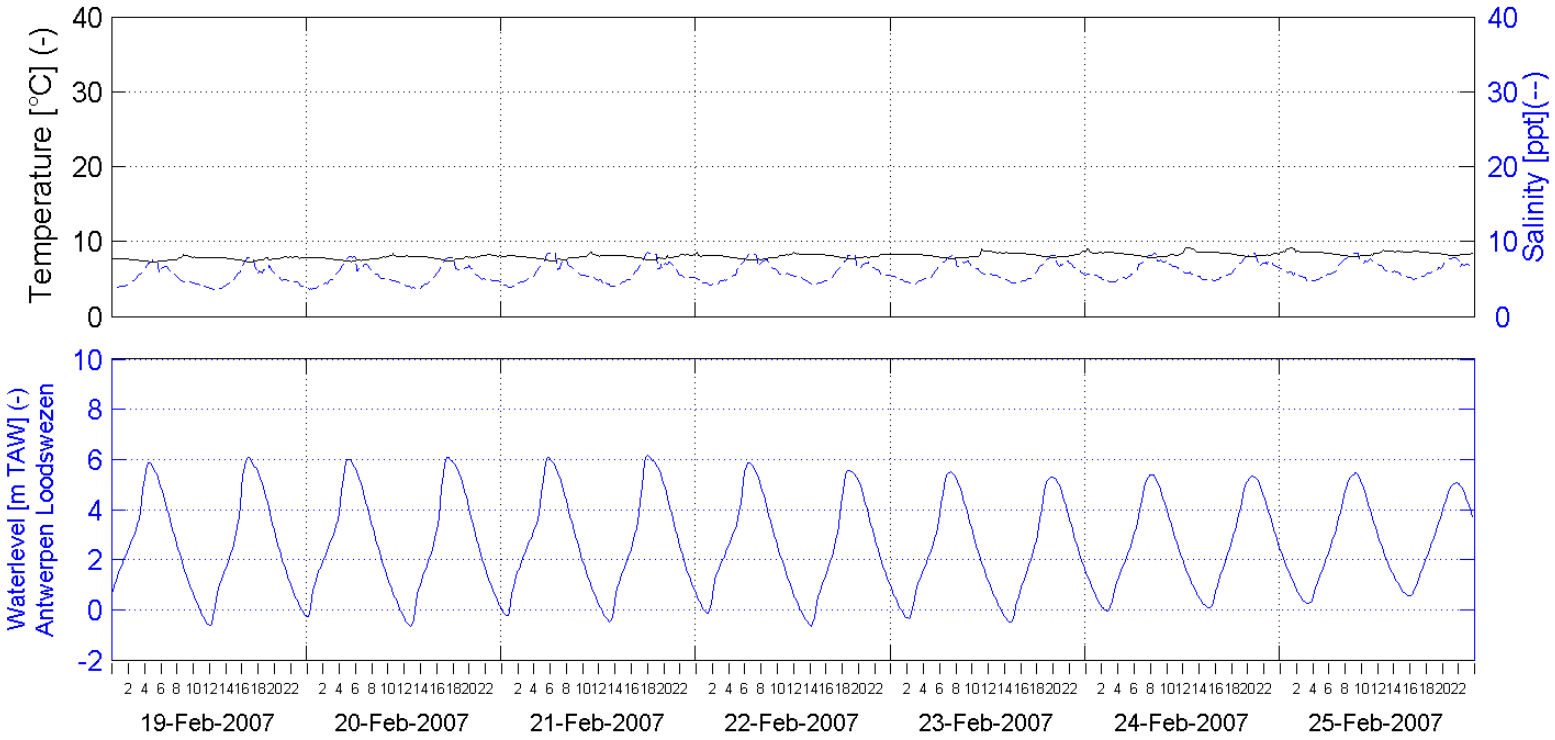
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 8 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

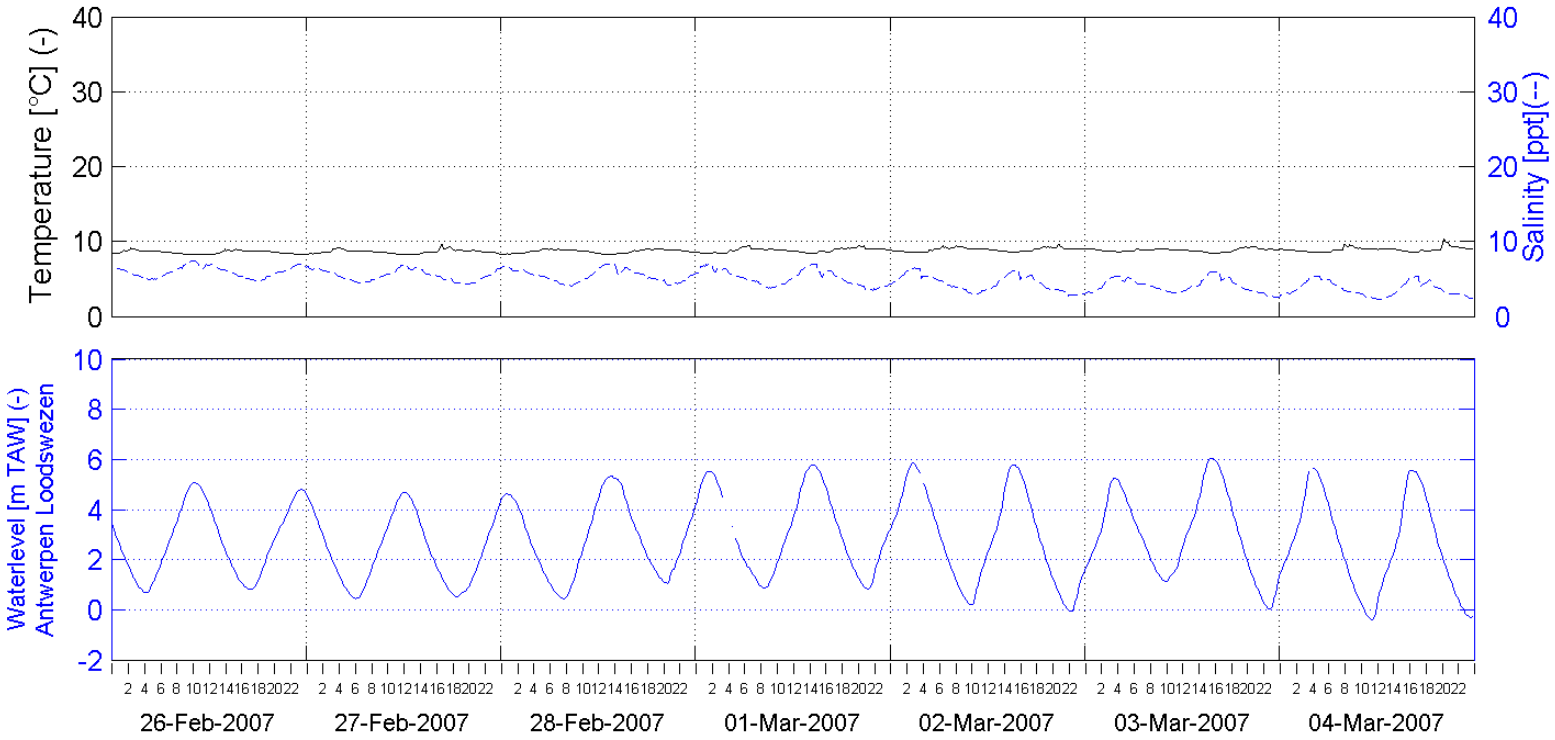
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 9 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

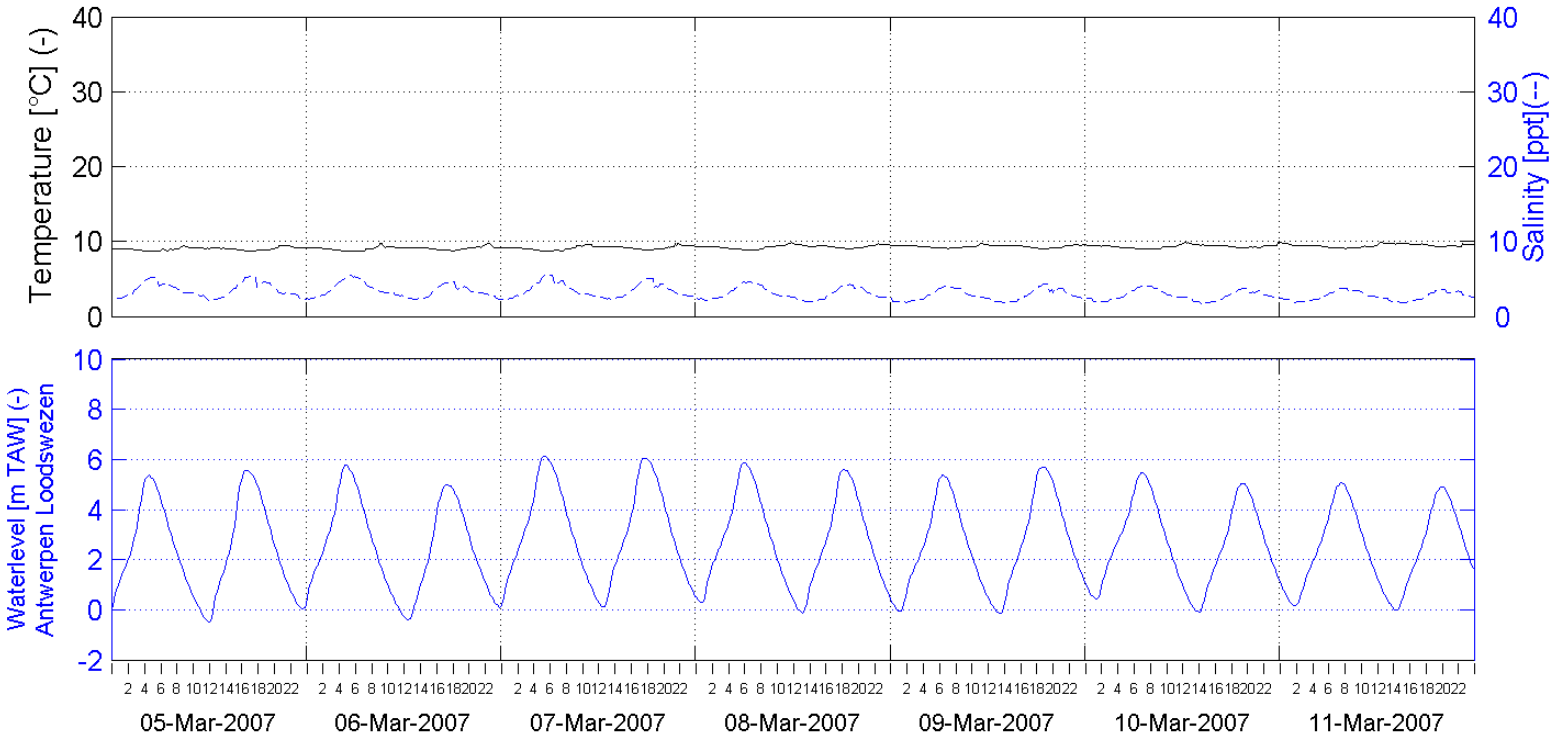
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 10 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

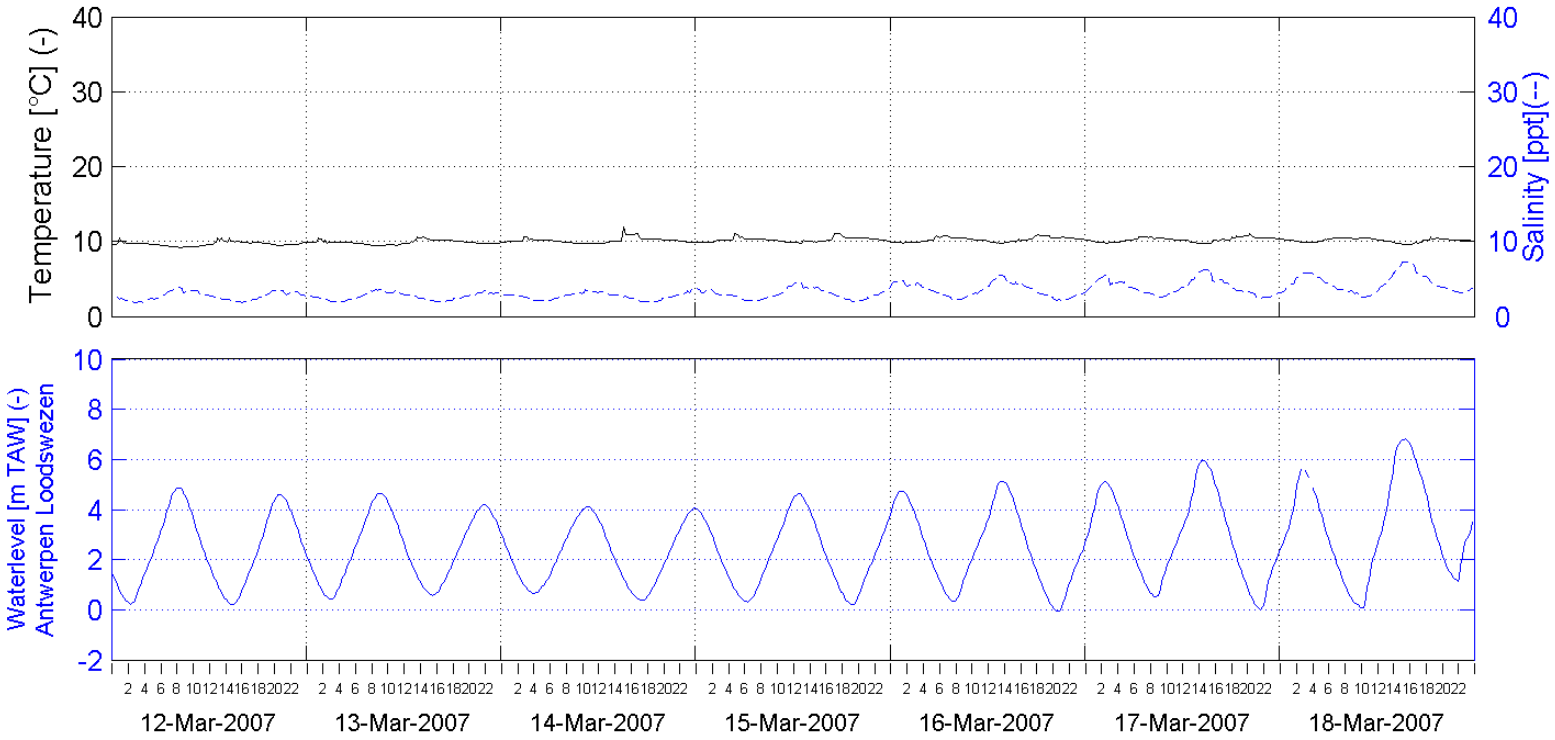
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 11 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

IMDC

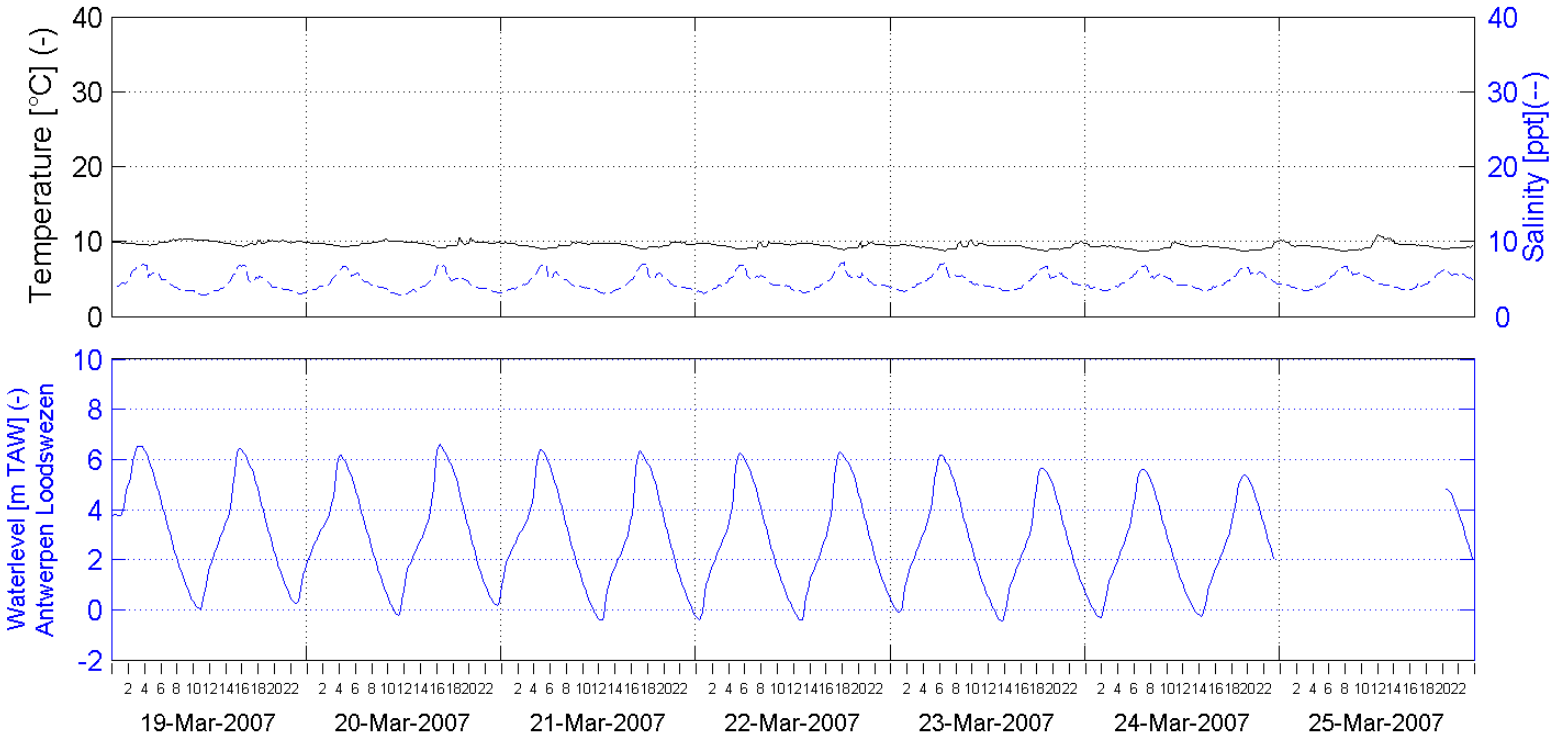
In Association with:

GEMS International

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 12 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

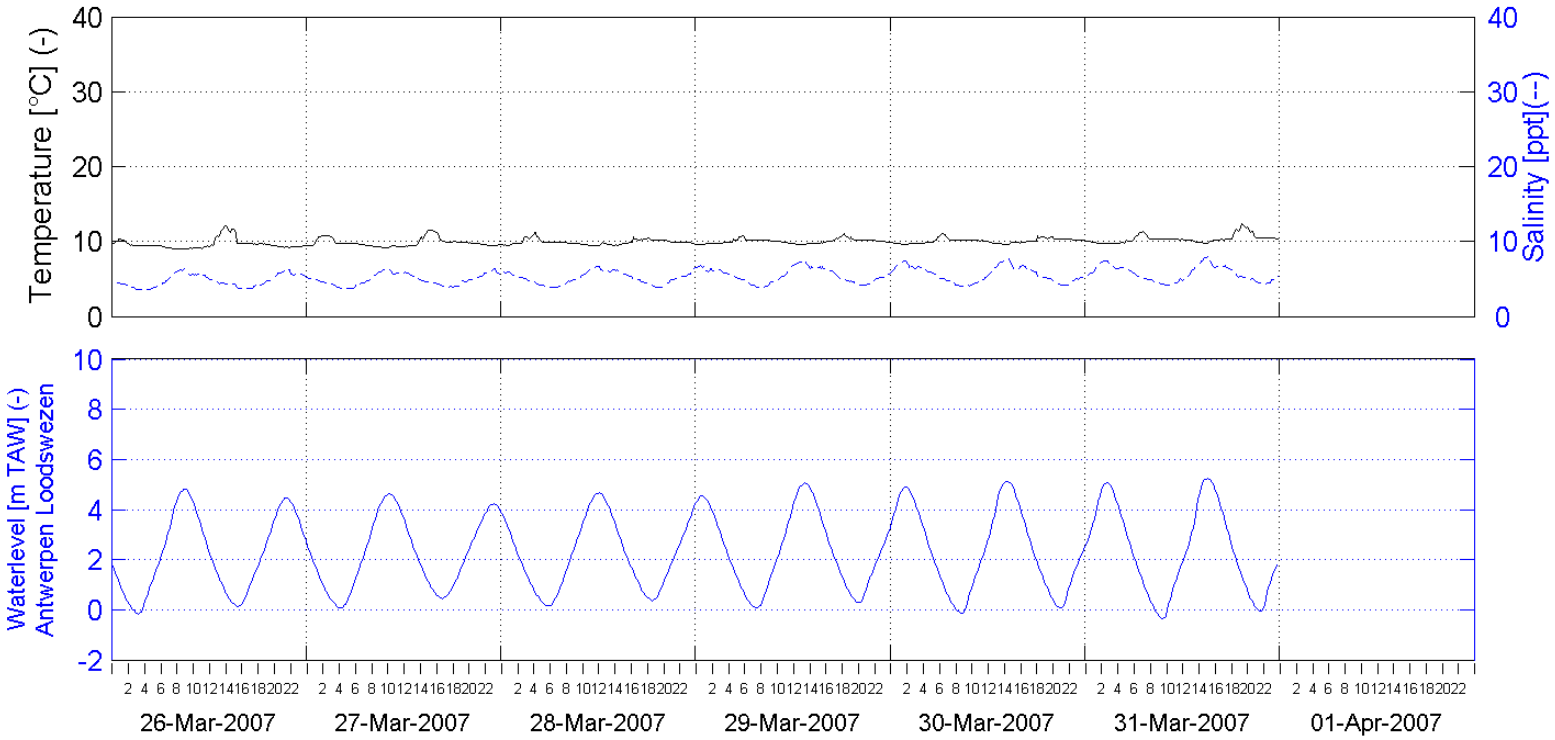
IMDC

In Association with:

I/RA/11283/06.127/MSA

Boundary conditions: Three monthly report 1/1/2007 - 31/03/2007

Week 13 - 2007



Week series of Temperature, Salinity and Tide

Location:

Prosperpolder - 2.5m above bottom (-1.5m TAW)

Processed by:

IMDC

In Association with:

I/RA/11283/06.127/MSA

C.2 Monthly results Minimum, Maximum and Average Velocity Magnitude, Temperature, Salinity & Suspended Sediment Concentration

Location: Oosterweel left bank
4.5 meter above bottom [-2.3 m TAW]

Velocity magnitude [m/s]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	0.00		1.34		0.67	
February 2007	0.01*		1.36*		0.66*	
March 2007	0.01*		1.13*		0.55*	
Temperature [°C]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	6.1		9.4		7.9	
February 2007	6.2*		8.2*		7.0*	
March 2007	8.9*		10.5*		9.5*	
Salinity [ppt]						
Month	**Minimum**		**Maximum**		**Average**	
	HW	**LW**	**HW**	**LW**	**HW**	**LW**
January 2007	-	-	-	-	-	-
February 2007	-	-	-	-	-	-
March 2007	1.0*	0.5*	2.8*	0.8*	1.7*	0.6*
Suspended sediment concentration [mg/l]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	5		430		187	
February 2007	33*		427*		254*	
March 2007	16*		415*		153*	

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

Location: Oosterweel left bank
1.0 meter above bottom [-5.8 m TAW]

Velocity magnitude [m/s]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	0.01		1.13		0.53	
February 2007	0.01*		1.40*		0.53*	
March 2007	0.00		1.36		0.52	
Temperature [°C]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	6.4		9.4		8.1	
February 2007	6.9*		8.7*		7.9*	
March 2007	8.4		10.5		9.3	
Salinity [ppt]						
Month	**Minimum**		**Maximum**		**Average**	
	HW	**LW**	**HW**	**LW**	**HW**	**LW**
January 2007	-	-	-	-	-	-
February 2007	-	-	-	-	-	-
March 2007	-	-	-	-	-	-
Suspended sediment concentration [mg/l]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	13		1793		197	
February 2007	36*		788*		343*	
March 2007	23		579		229	

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.
.

Location: Prosperpolder[3]
2.5 meter above bottom [-1.5 m TAW]

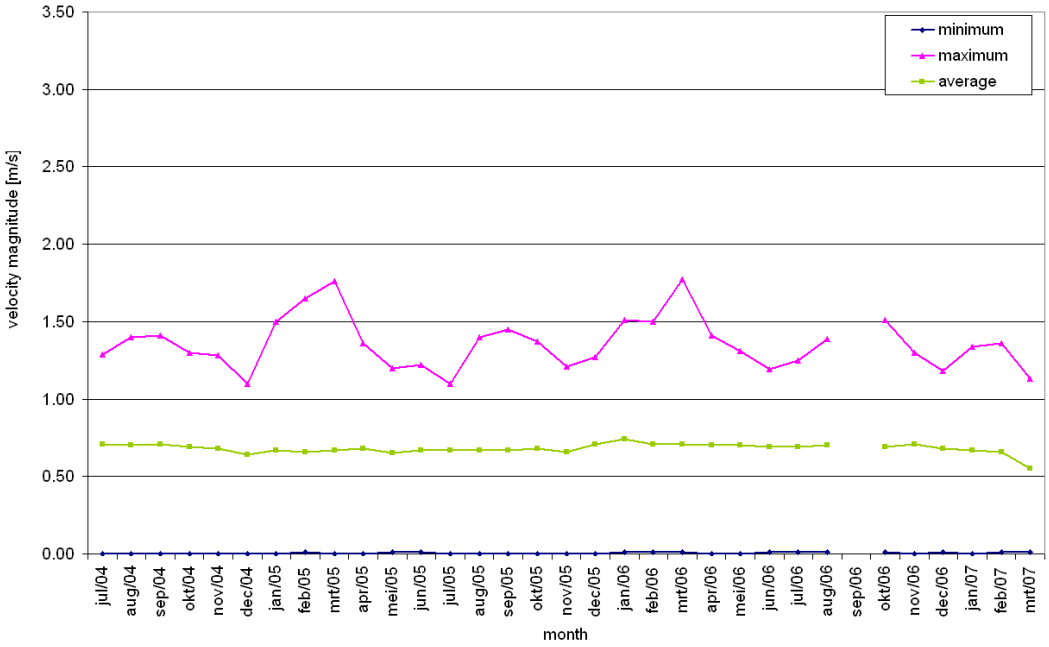
Temperature [°C]						
Month	**Minimum**		**Maximum**		**Average**	
January 2007	7.2		10.1		8.5	
February 2007	6.9		9.6		7.9	
March 2007	8.4		12.3		9.6	
Salinity [ppt]						
Month	**Minimum**		**Maximum**		**Average**	
	HW	**LW**	**HW**	**LW**	**HW**	**LW**
January 2007	6.4	3.6	11.8	8.3	8.6	5.4
February 2007	6.4	3.2	9.4	6.5	8.0	4.7
March 2007	3.2	1.9	8.0	4.5	5.6	2.9

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

[3] Current velocity and suspended sediment were not measured at Propsperpolder.

C.3 Graphs monthly results for the whole deployment period

Velocity magnitude & temperature



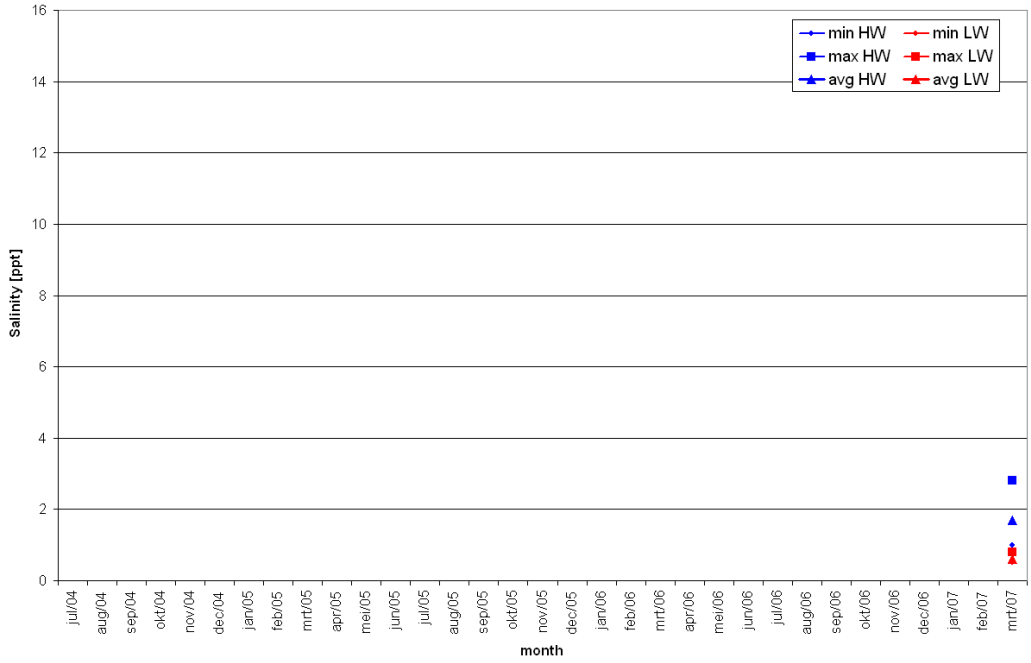
Oosterweel left bank
4.5m above bottom (-2.3m TAW)

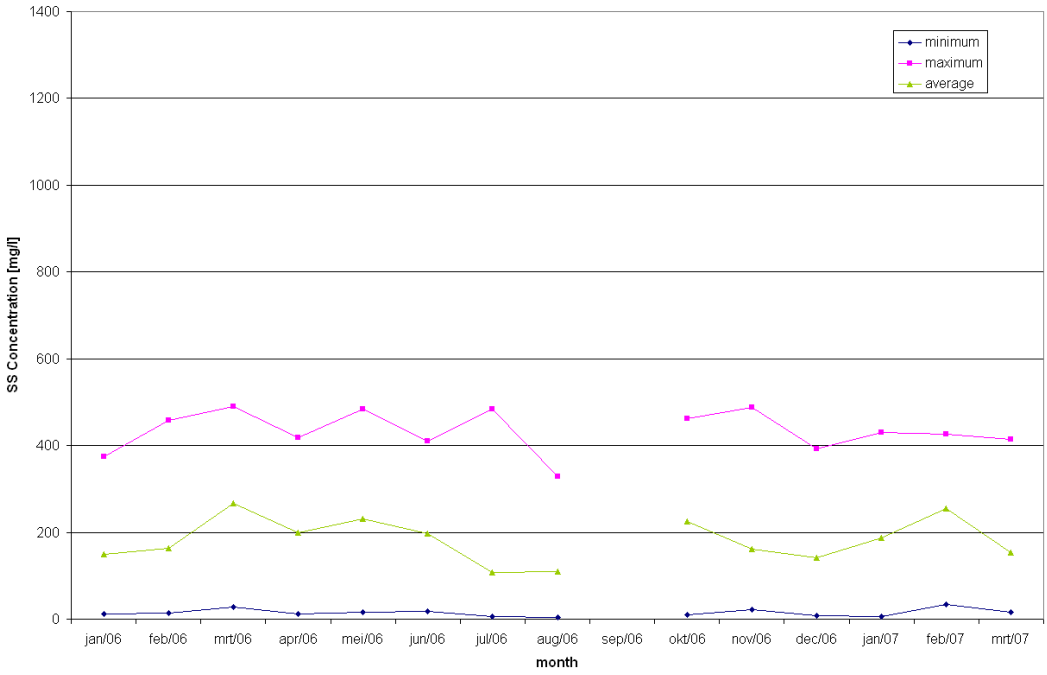
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Salinity & SS Concentration





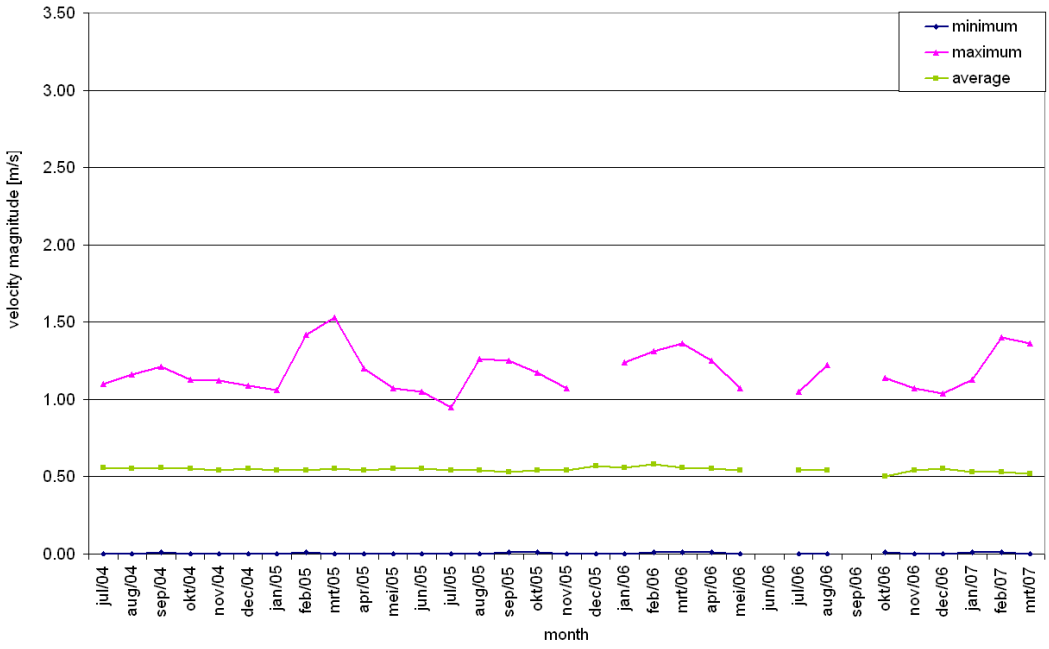
Oosterweel left bank
4.5m above bottom (-2.3m TAW)

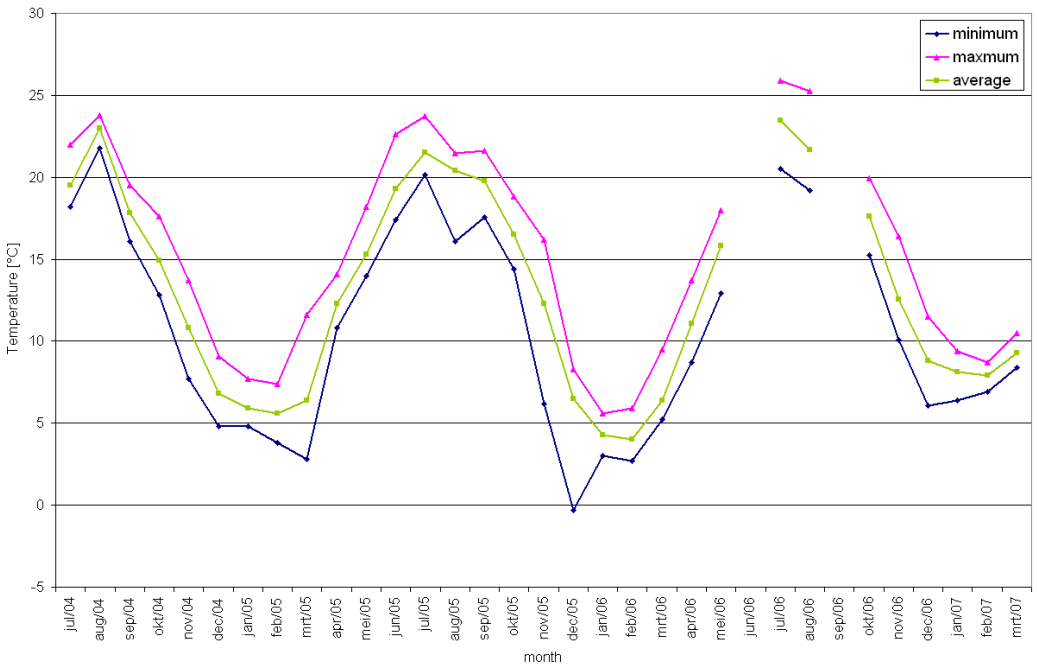
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Velocity magnitude & temperature





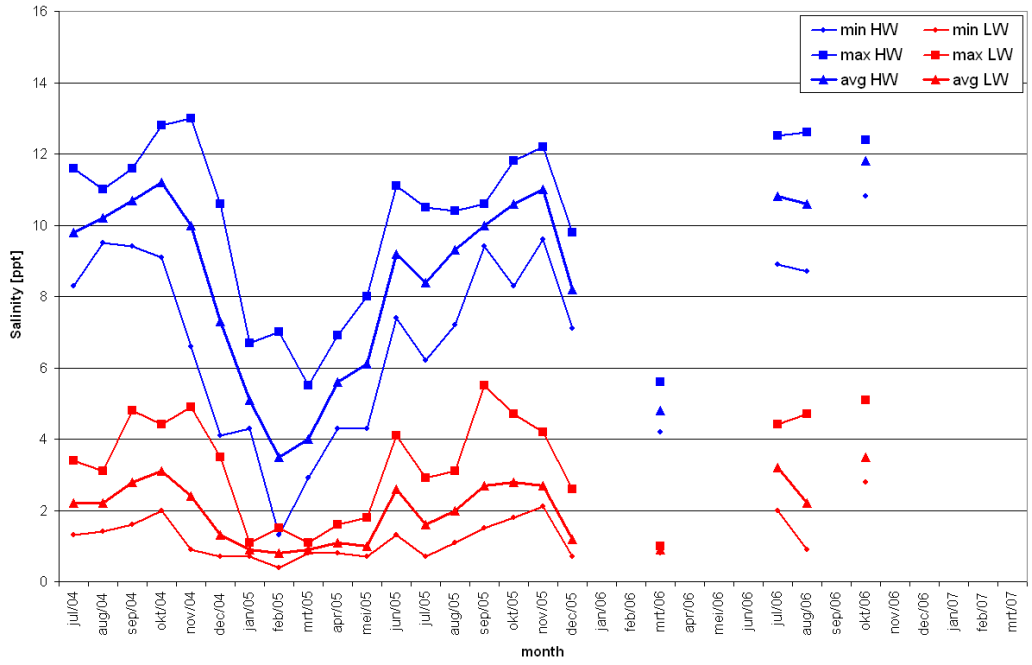
Oosterweel left bank
1m above bottom (-5.8m TAW)

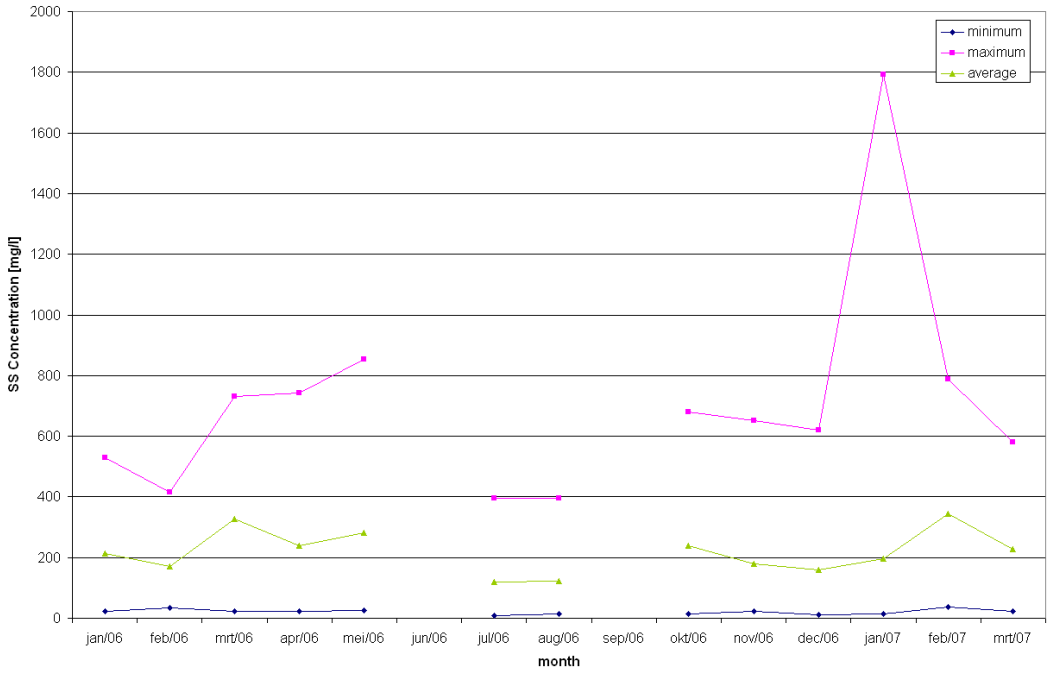
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Salinity & SS Concentration





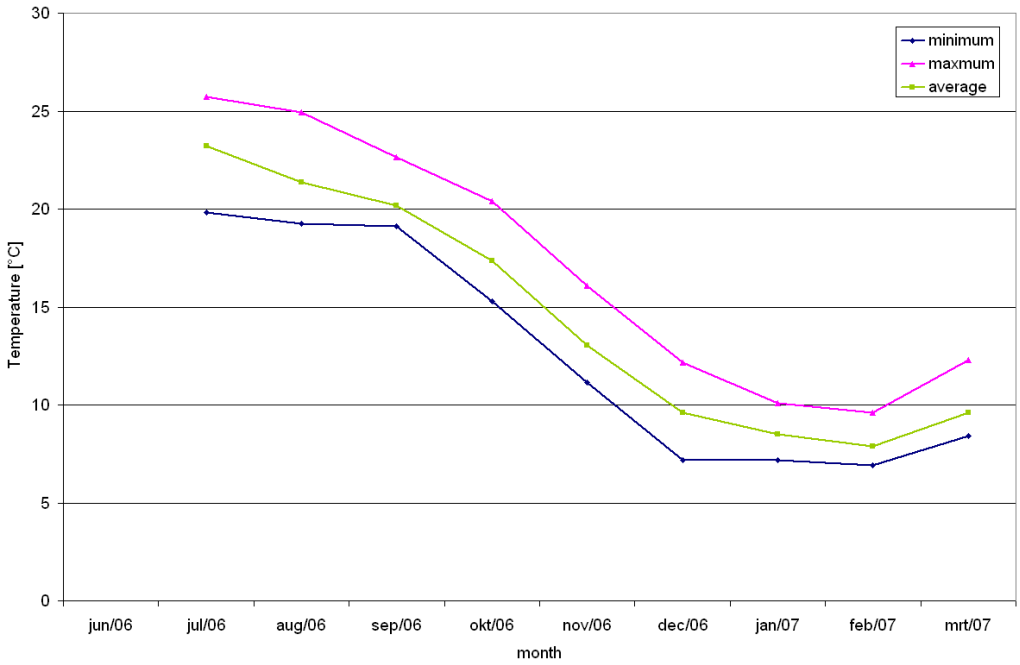
Oosterweel left bank
1m above bottom (-5.8m TAW)

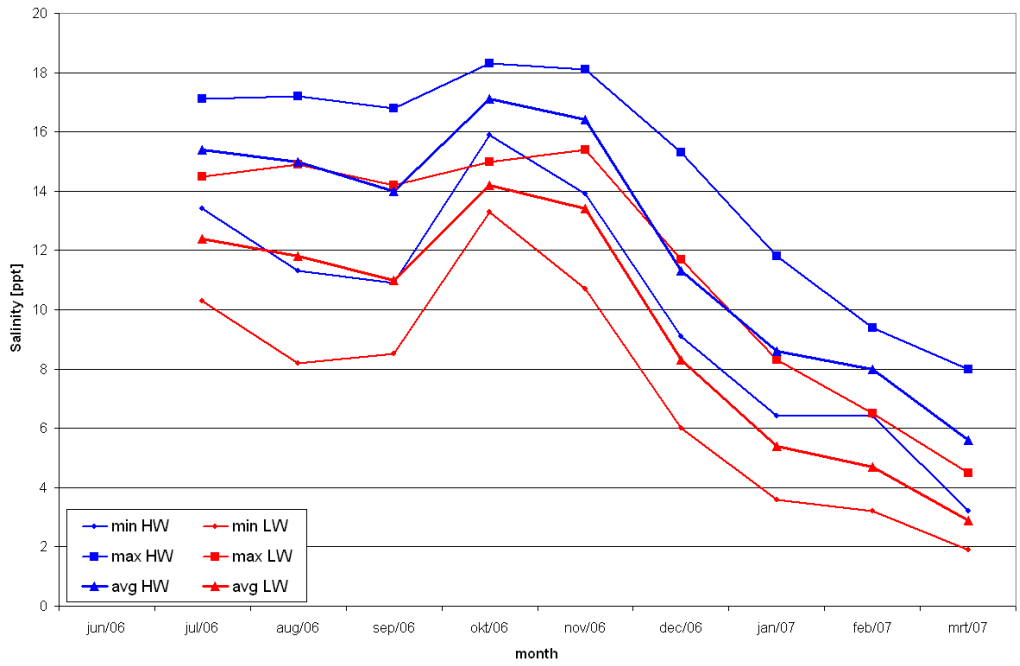
Data processed by:

In association with:

I/RA/11291/06.089/MSA

Temperature & Salinity





Propsperpolder
2.5m above bottom (-1.5m TAW)

Data processed by:

In association with:

I/RA/11291/06.089/MSA

C.4 Total result from January 2007 till March 2007 of velocity magnitude, temperature, salinity and suspended sediment concentration

Averages for the whole deployment period of each instrument [January 2007 – March 2007]

Location	Depth [m TAW]	Velocity [m/s]			Temperature [°C]			SS concentration [mg/l]		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Oosterweel left bank	-2.3									
Oosterweel left bank	-5.8	0.00	1.40	0.53	6.4	10.5	8.6	13	1793	240
Prosperpolder	-1.5	-	-	-	6.9	12.3	8.7	-	-	-

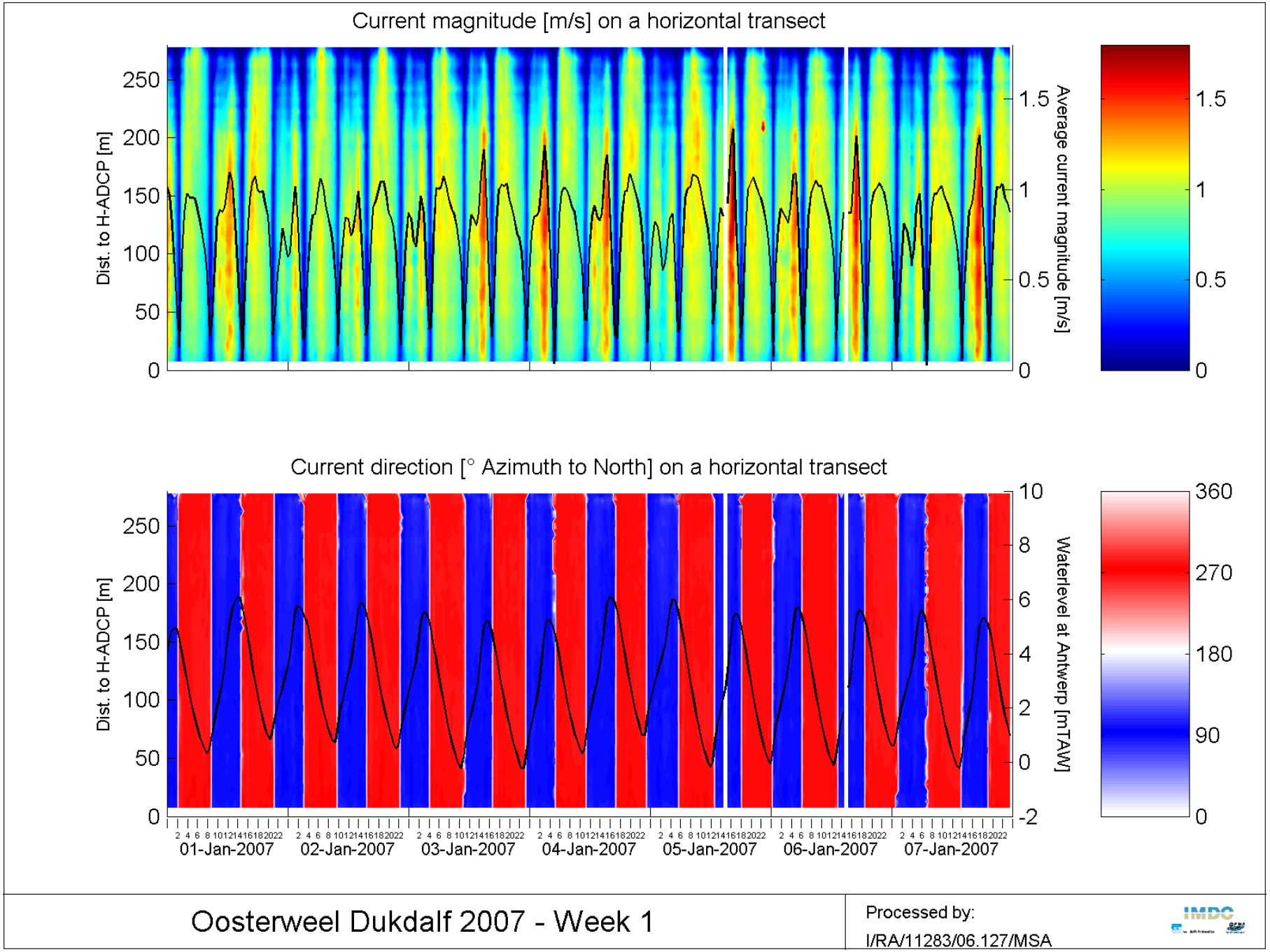
Salinity [ppt]

Location	Depth [m TAW]	Minimum		Maximum		Average	
		Slack HW	Slack LW	Slack HW	Slack LW	Slack HW	Slack LW
Oosterweel left bank	-2.3	-	-	-	-	-	-
Oosterweel left bank	-5.8	-	-	-	-	-	-
Prosperpolder	-1.5	3.2	1.9	11.8	8.3	7.4	4.4

-: No data or less than 30% of the monthly data available.
*: Less than 70% of the monthly data available.

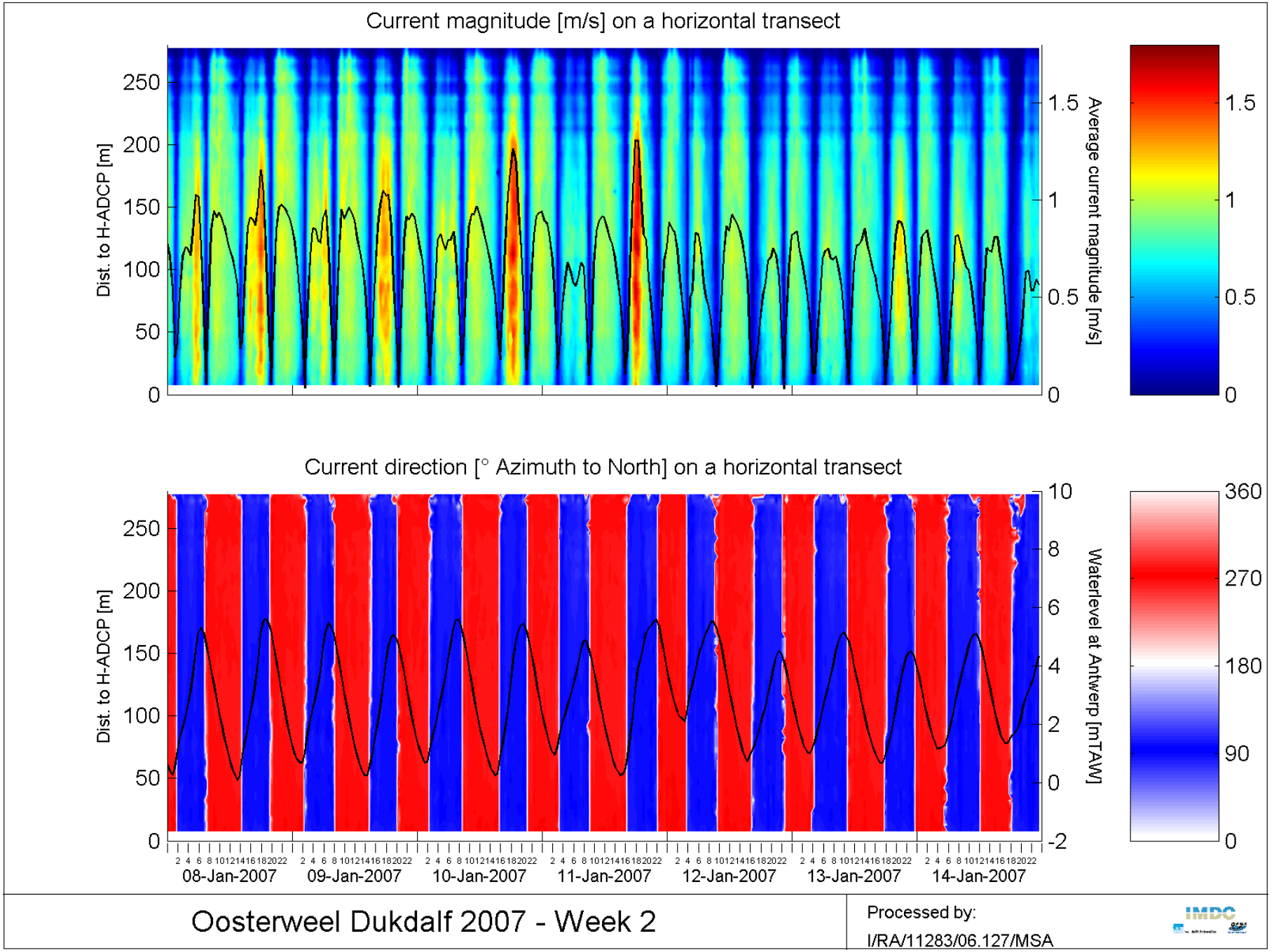
APPENDIX D.

LONG TERM MEASUREMENTS OF HORIZONTAL ADCP AT OOSTERWEEL



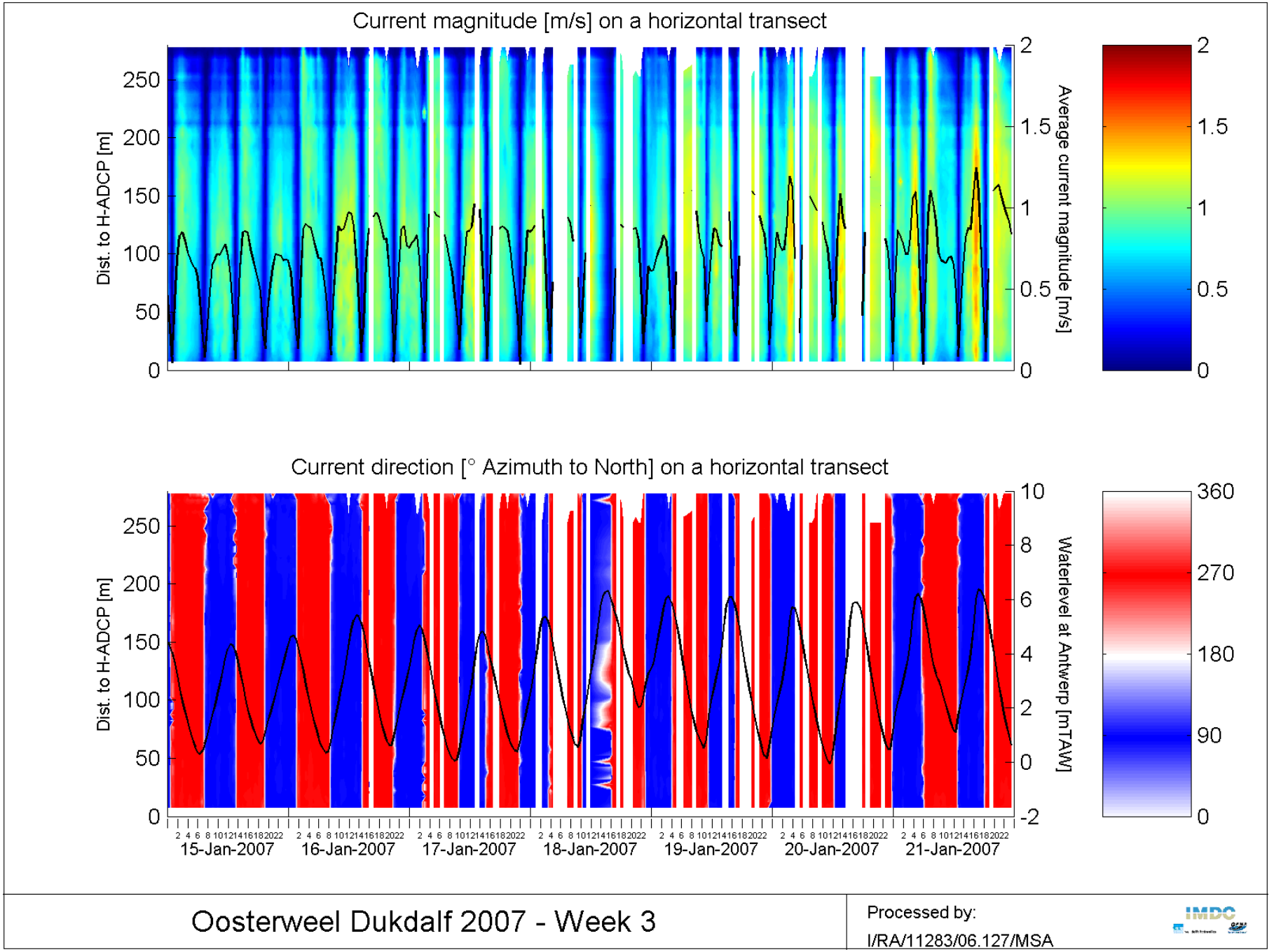
Oosterweel Dukdalf 2007 - Week 1

Processed by:
I/RA/11283/06.127/MSA



Oosterweel Dukdalf 2007 - Week 2

Processed by:
I/RA/11283/06.127/MSA



Oosterweel Dukdalf 2007 - Week 3

Processed by:
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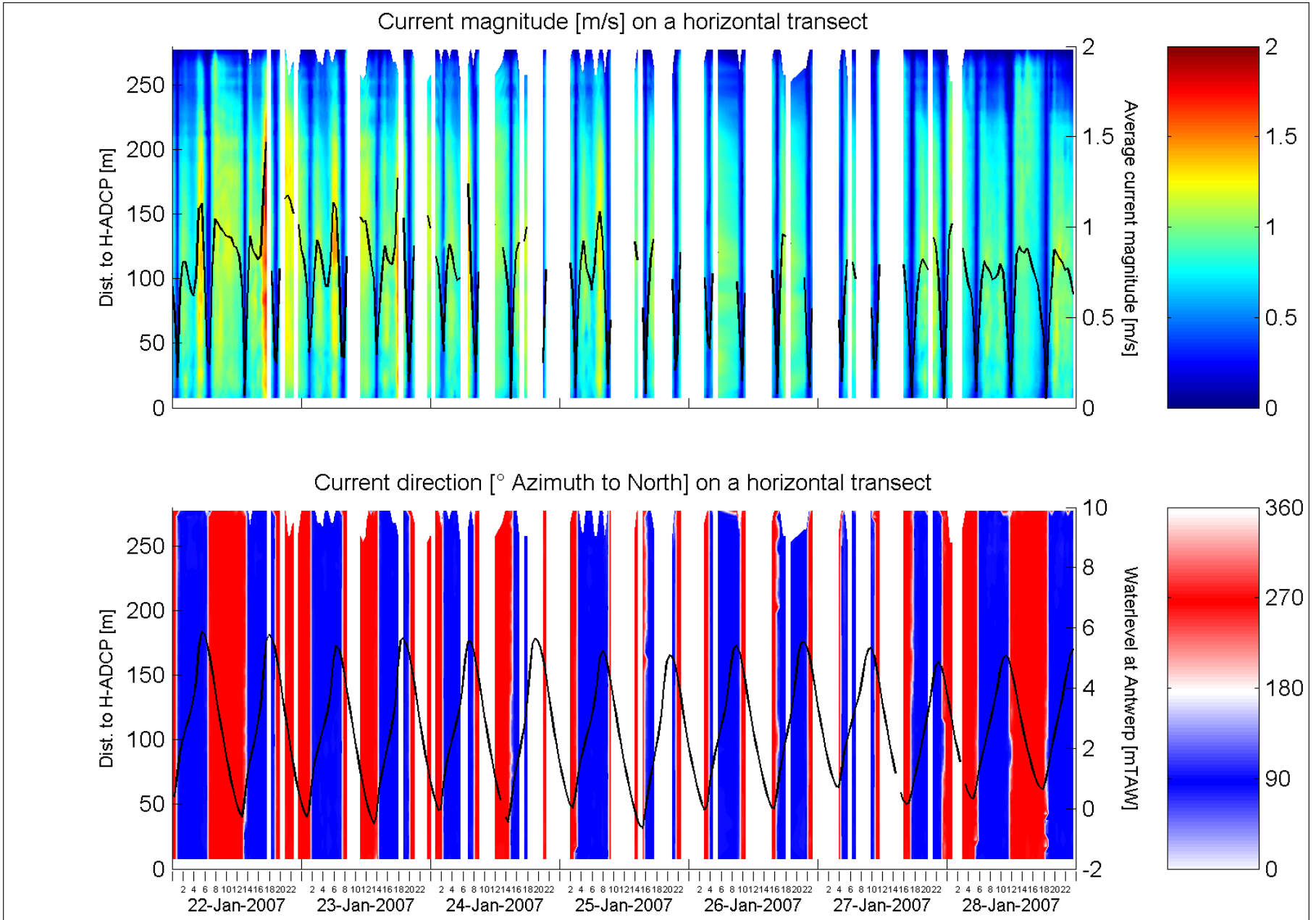
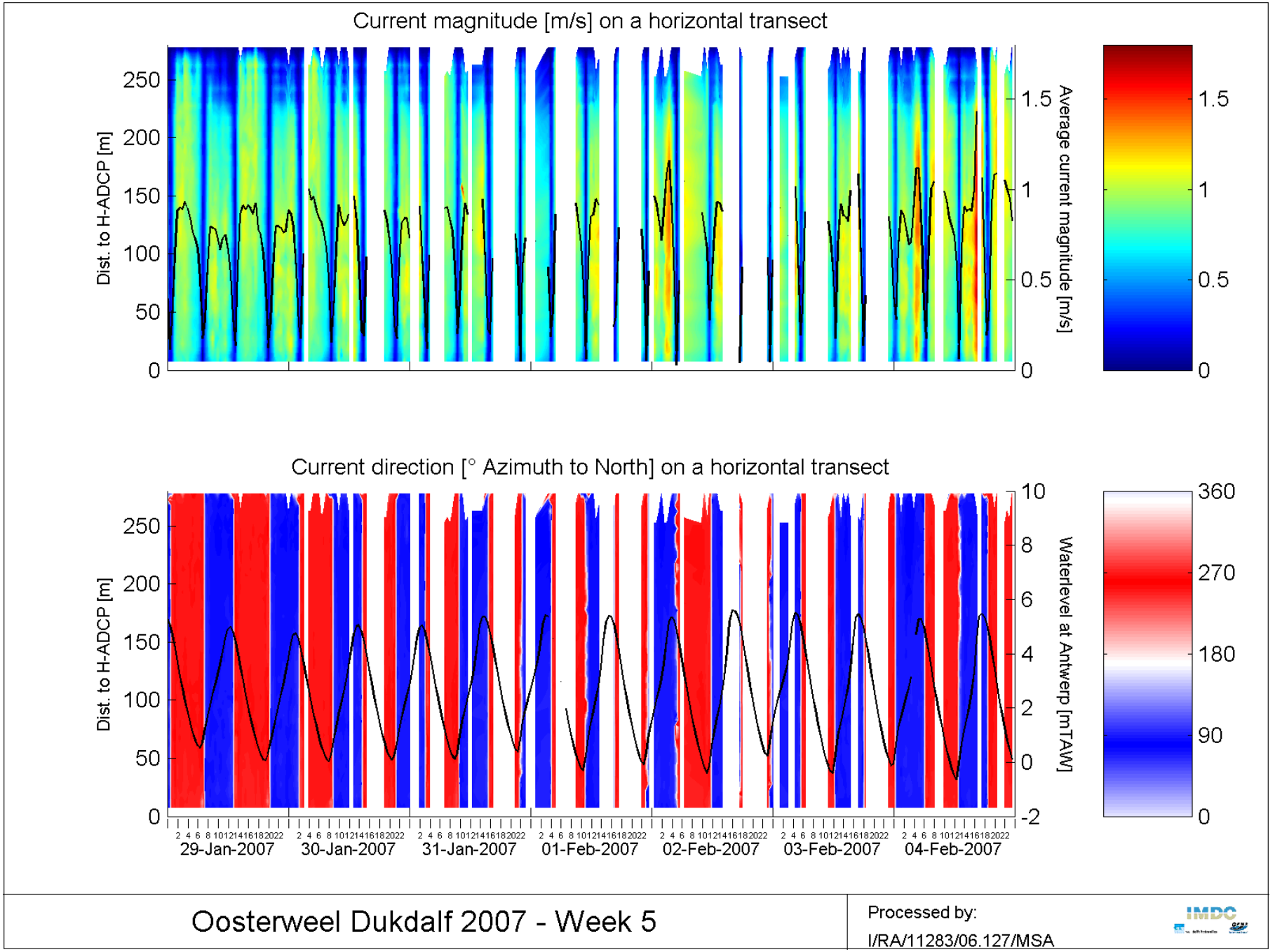


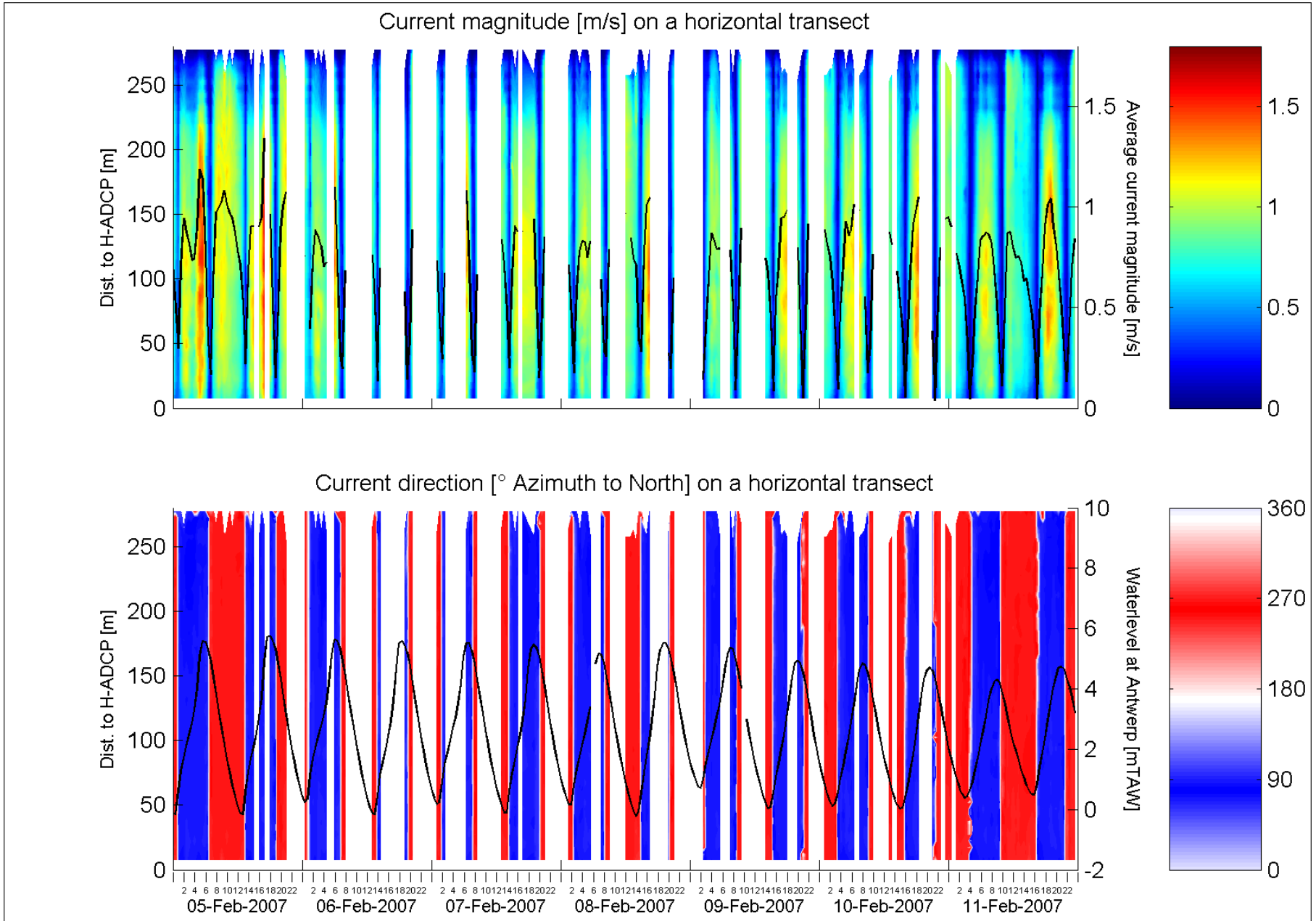
Oosterweel Dukdalf 2007 - Week 4

Processed by:
I/RA/11283/06.127/MSA



Oosterweel Dukdalf 2007 - Week 5

Processed by:
I/RA/11283/06.127/MSA



Oosterweel Dukdalf 2007 - Week 6

Processed by:
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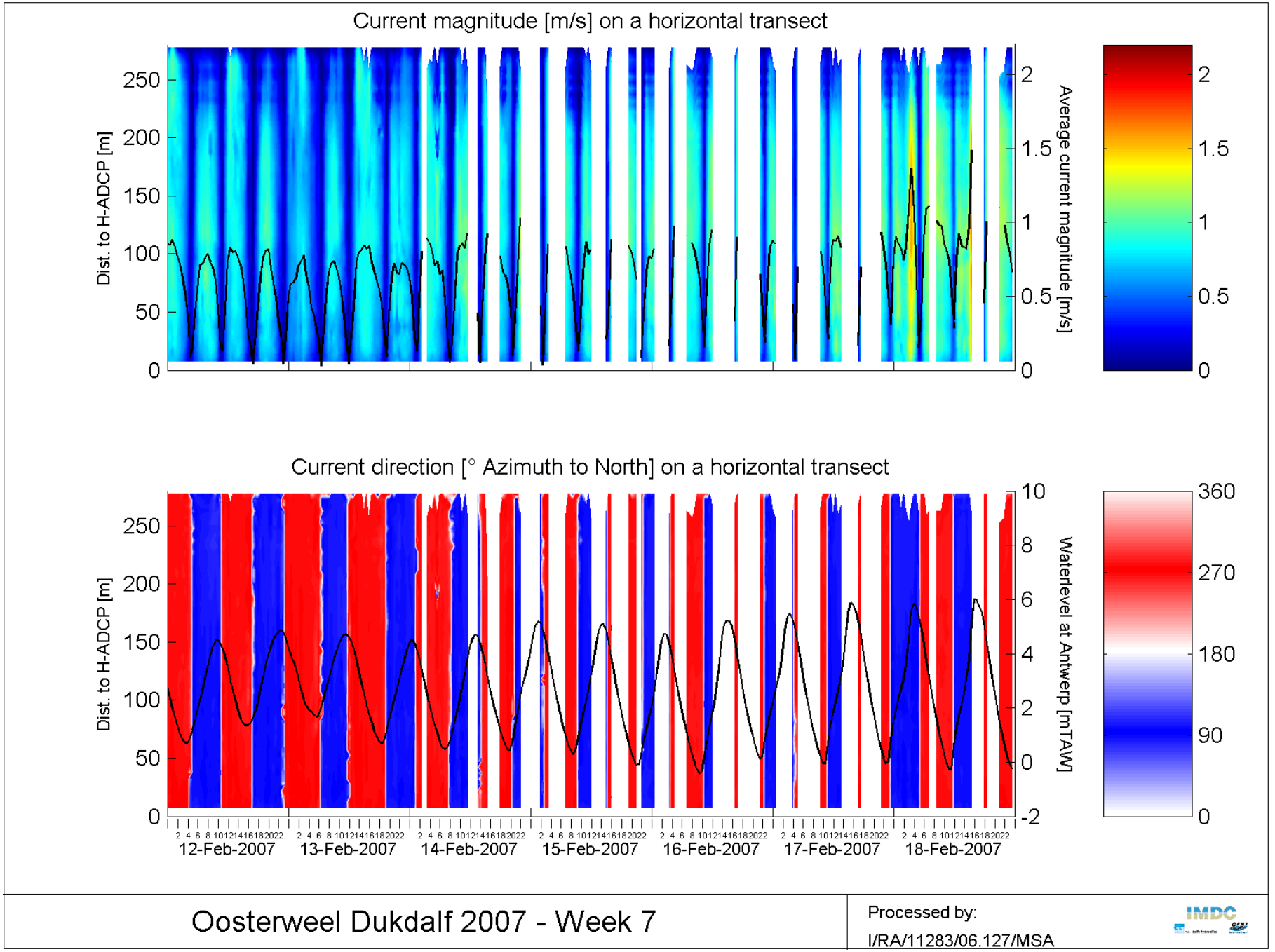

Oosterweel Dukdalf 2007 - Week 7

Processed by:
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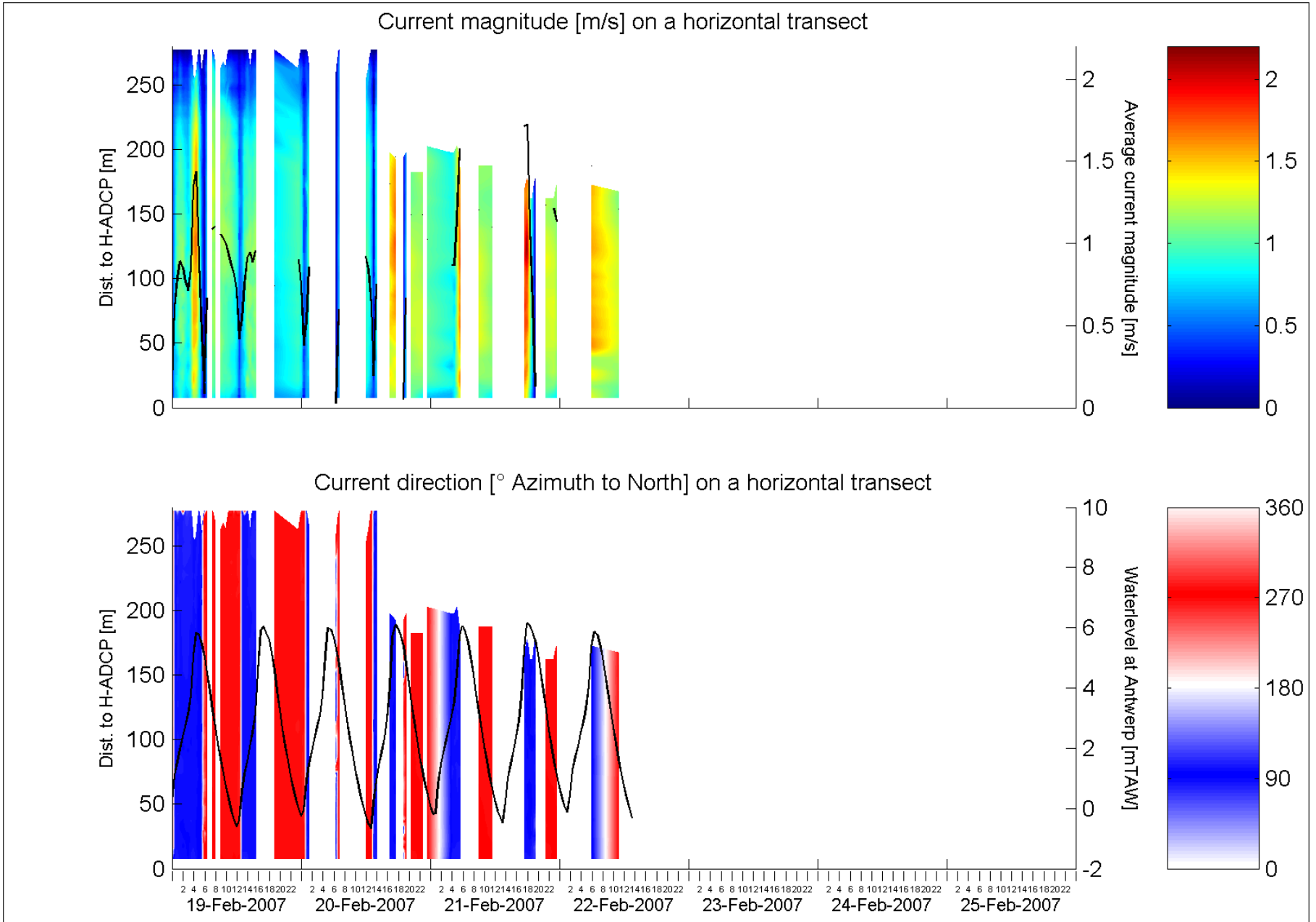
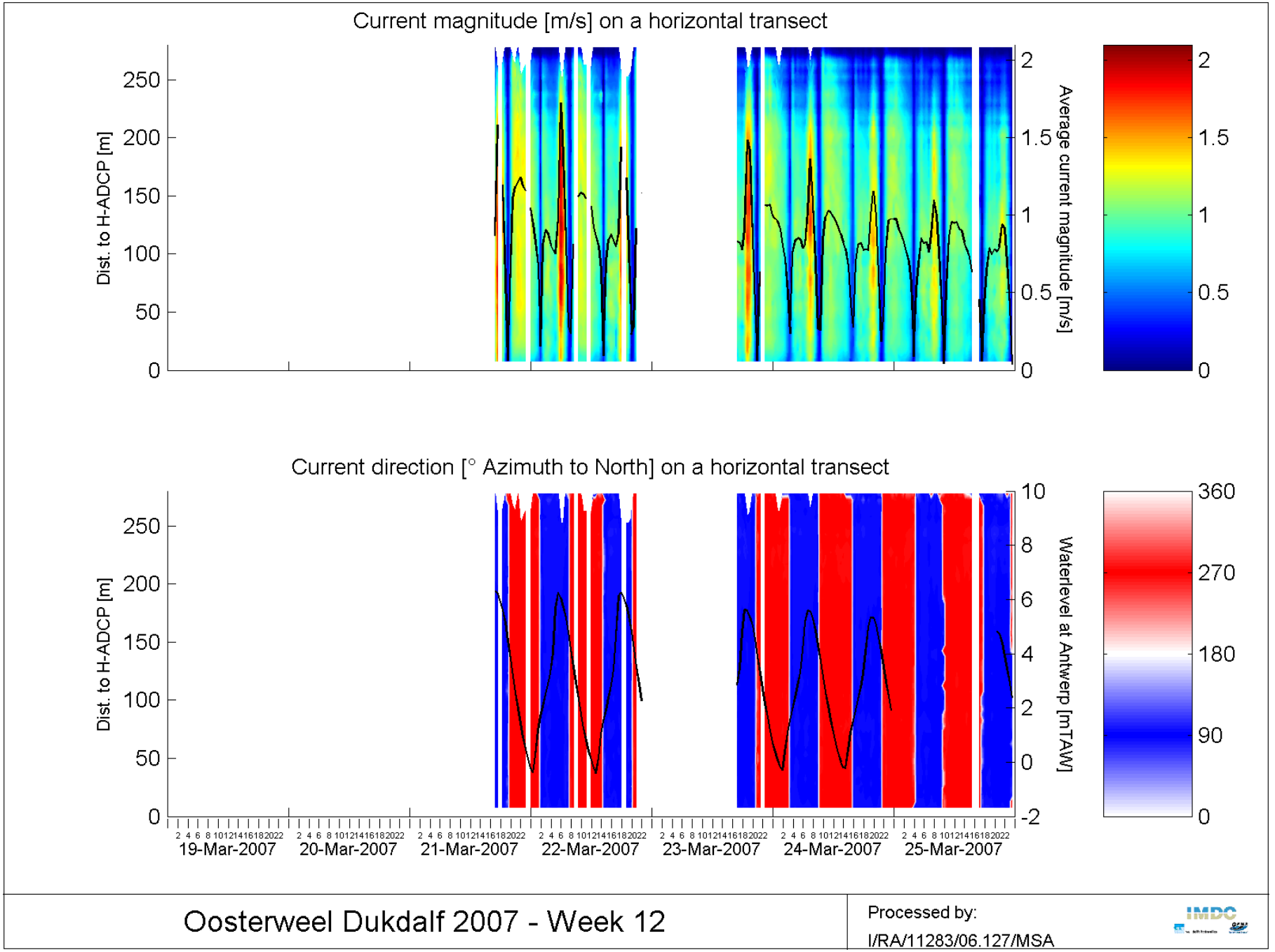


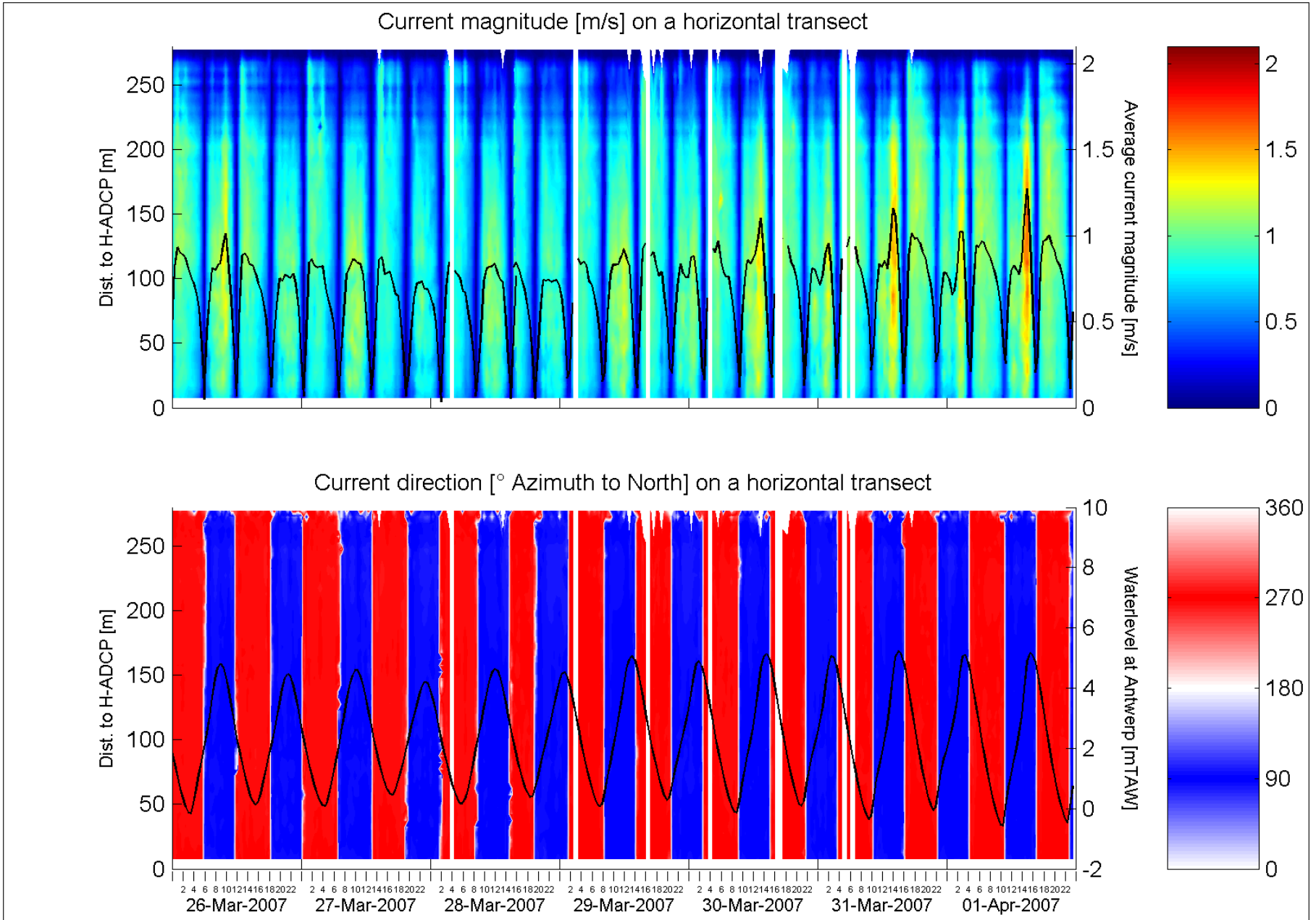
Oosterweel Dukdalf 2007 - Week 8

Processed by:
I/RA/11283/06.127/MSA



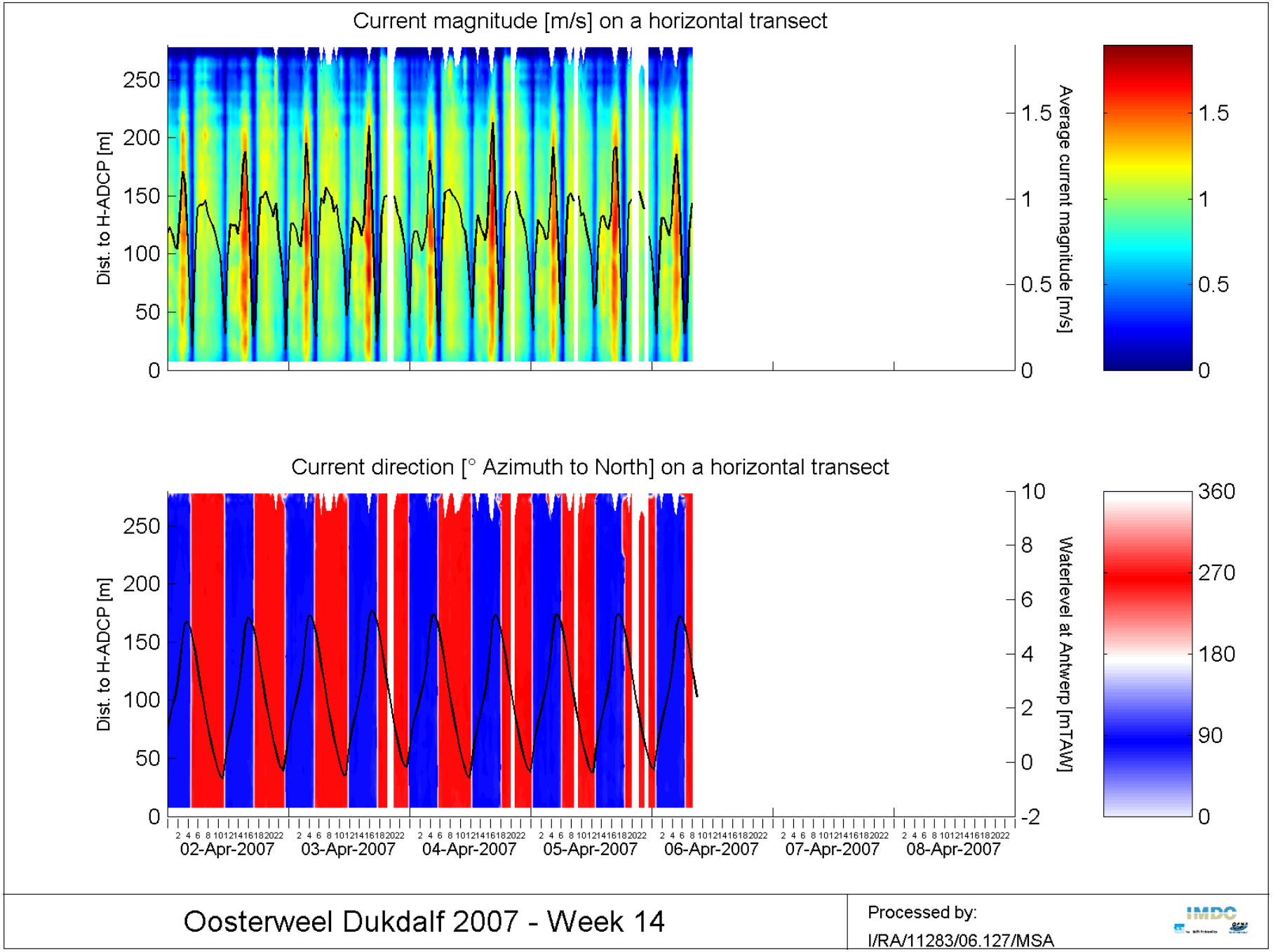
Oosterweel Dukdalf 2007 - Week 12

Processed by:
I/RA/11283/06.127/MSA



Oosterweel Dukdalf 2007 - Week 13

Processed by:
I/RA/11283/06.127/MSA



Oosterweel Dukdalf 2007 - Week 14

Processed by:
I/RA/11283/06.127/MSA

APPENDIX E.

MONTLY RESULTS: MINIMUM, MAXIMUM AND AVERAGE SALINITY AT BAALHOEK AND HOOFDPLAAT FOR THE PERIOD 01/01/2007 – 31/03/2007

Location: Baalhoek

Upper cell: floating at water surface
Lower cell: 4.7 meter above bottom [-3.1m TAW]

Salinity [ppt] (upper cell)			
Month	**Minimum**	**Maximum**	**Average**
January	5.9	17.1	10.8
February	5.2	14.7	9.9
March	3.3	13.6	7.6
Salinity [ppt] (lower cell)			
Month	**Minimum**	**Maximum**	**Average**
January	5.7	17.6	11.4
February	5.7	15.7	10.5
March	3.0	14.2	8.2

-: No data or less than 30% of monthly data available
*: Less than 70% of monthly data

Location: Hoofdplaat

Floating at water surface

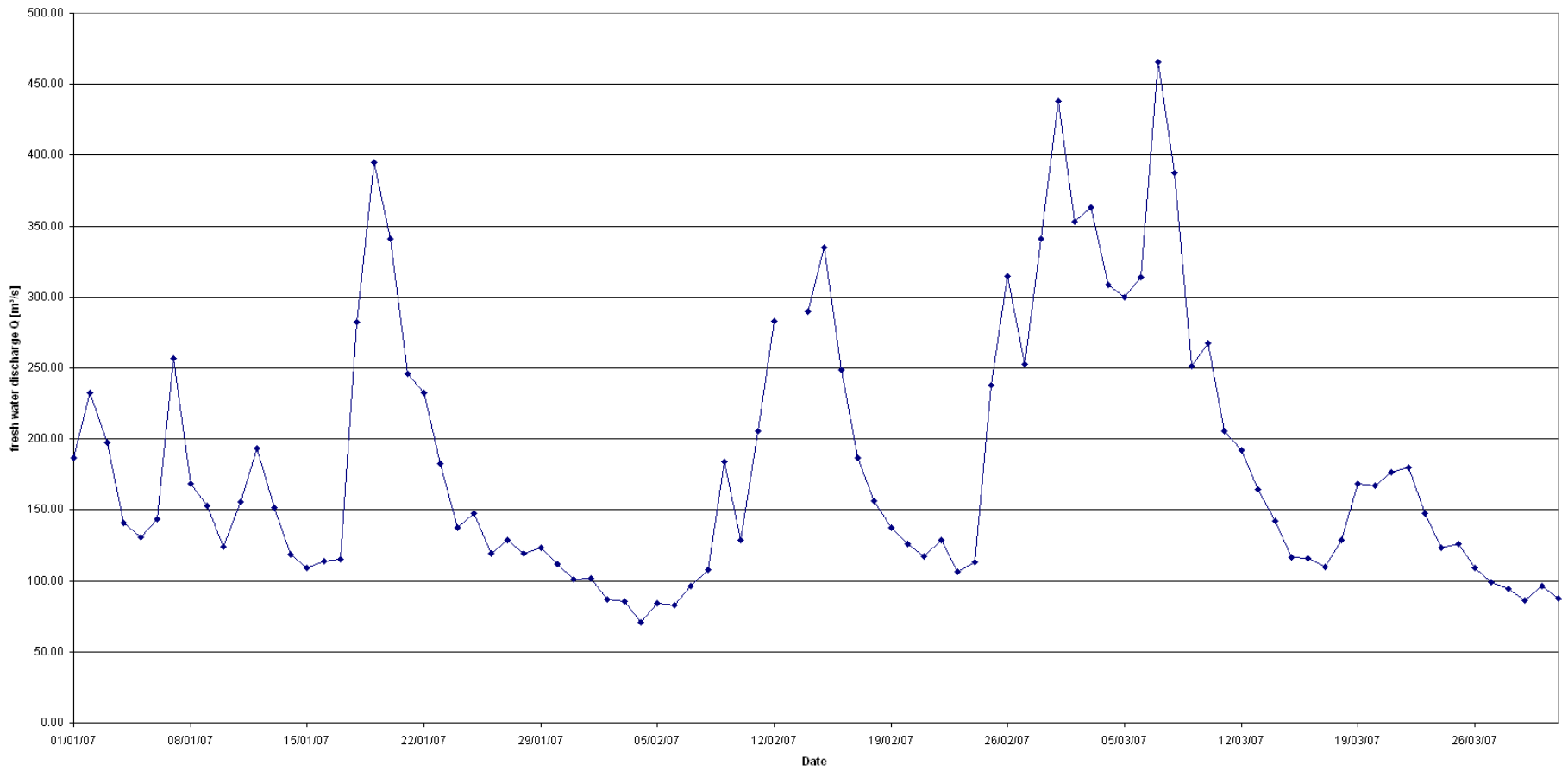
Salinity [ppt]			
Month	**Minimum**	**Maximum**	**Average**
January	18.2	28.7	25.4
February	17.5	28.4	24.4
March	18.9	34.6	23.3

-: No data or less than 30% of monthly data available
*: Less than 70% of monthly data

APPENDIX F.

FRESH WATER DISCHARGE

11283 Opvolging aanslibbing Deurganckdok – Omgevingscondities – januari-maart 2007



Fresh water discharge

Location:	Date:
Schelle	01/01/2007 – 31/03/2007

Data processed by: IMDC

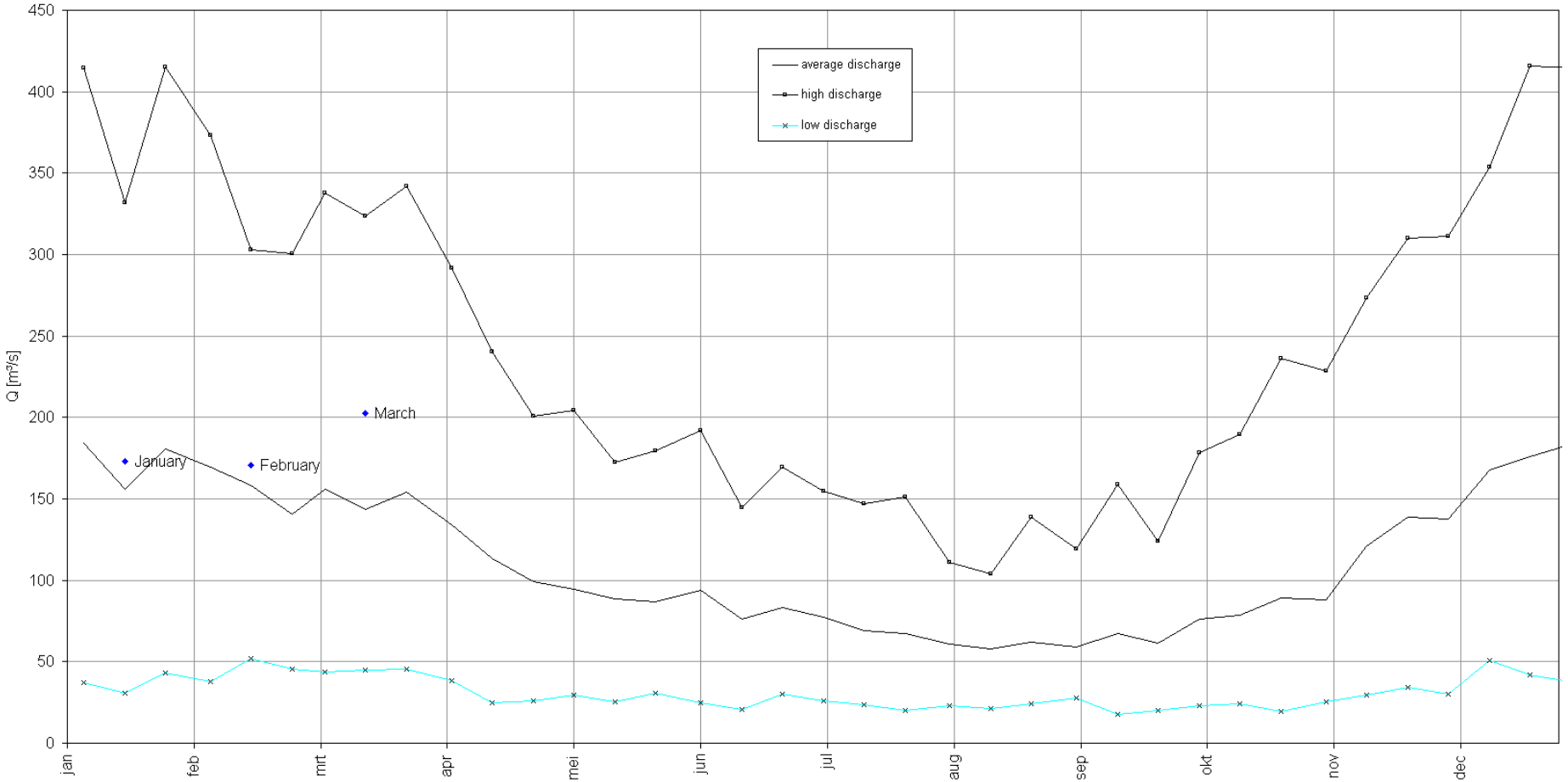
In association with: WL | delft hydraulics, GEMS International

I/RA/112831/06.127/MSA

Decade averages of the fresh water discharge [m³/s] of the Scheldt at Schelle (January 2007 – March 2007)

	First Decade	*Second Decade*	*Third Decade*
January	173	198	150
February	103	219	202
March	345	151	121

Average monthly discharge of 2007 compared to the long-term discharge curve (based on a long-term simulation over a period of 30 year; 1971-2000)



APPENDIX G.

MONTHLY RESULTS METEOROLOGICAL MEASUREMENTS AT DEURNE

Terminology

Nederlands:	*English:*
Druk:	Pressure
Bewolking:	Cloudiness
Zon duur:	Duration of Sunshine
Temperaturen:	Temperatures
Lucht:	Air
Gras:	Grass
Minimum onder naakte grond:	Minimum under bare soil
Bewolking: 9 = bovenlucht niet zichtbaar	Cloudiness 9 = upper atmosphere invisible
Ontbrekend gegeven:	Missing data
Gem.:	Average
Min. :	Minimum
Max.:	Maximum
Rel. vocht.:	Relative Humidity
Mist:	Fog
Duur in minuten:	Duration in minutes
Neerslag:	Precipitation
Dag met:	Day with
Wind:	Wind
Snelheid (km/h) en richting:	Velocity (km/h) and direction
* = Sneeuw:	* = Snow
▲ = Hagel:	▲ = Hail
ק = Onweer:	ק = thunderstorm
Neerslag te wijten aan mist of dauw:	Precipitation due to fog or dew

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. SEPTEMBER 2006

	DRUK hPa	BEWOLKING Octas				ZON DUUR	LUCHT			GRAS	TEMPERATUREN °C MINIMUM ONDER NAAKTE GROND					
	GEM.	0h	6	12	18	h min	GEM.	MAX.	MIN.	MIN.	-2cm	-5cm	-10cm	-20cm	-50cm	-100cm
1	1016.4	1	6	6	7	1 50	18.2	23.8	14.1	11.9	13.8	16.9	16.4	15.9	16.8	16.4
2	1012.0	4	7	7	8	0 45	18.0	20.4	14.8	12.0	14.3	17.8	17.3	16.7	17.3	16.4
3	1011.7	8	8	8	5	1 15	20.1	23.0	17.6	15.8	16.7	19.4	18.3	17.4	16.6	16.5
4	1023.1	2	7	6	2	4 0	18.7	22.0	15.4	15.0	15.8	19.2	18.5	17.8	17.8	16.6
5	1024.6	0	7	7	6	1 35	19.1	24.3	15.9	14.9	16.5	19.2	18.4	17.7	17.9	16.7
6	1018.1	0	1	2	1	9 45	20.1	26.7	13.7	11.9	15.2	18.6	18.3	17.9	15.2	16.8
7	1019.0	1	7	5	4	5 15	17.1	19.5	13.7	12.0	13.3	17.6	18.0	18.1	18.9	17.0
8	**1029.5**	1	0	3	2	10 10	15.3	20.1	9.6	7.6	11.5	16.0	17.2	16.7	18.0	17.2
9	1026.7	1	0	1	4	10 30	15.5	21.5	10.2	8.8	11.0	15.3	15.7	16.2	17.6	17.1
10	1022.0	4	3	0	0	11 10	16.9	24.4	10.0	8.0	11.6	15.7	15.9	16.5	17.6	17.0
11	1019.7	0	2	0	0	10 10	18.6	26.3	10.7	9.5	12.6	16.8	17.0	17.1	18.1	17.0
12	1016.3	0	0	0	2	9 50	20.2	**29.5**	11.4	10.2	13.2	17.3	17.7	17.8	18.6	17.1
13	1012.2	1	1	3	6	8 45	20.7	27.3	14.1	12.8	15.2	18.9	18.8	18.8	19.2	17.3
14	1007.6	5	6	6	7	1 45	19.9	25.0	15.6	14.0	16.2	19.8	19.6	19.4	19.5	17.5
15	**1005.8**	7	6	6	7	6 25	**21.6**	26.6	17.2	15.2	17.1	20.2	20.3	19.3	19.5	17.7
16	1008.3	7	4	4	8	8 55	21.2	26.6	15.3	12.7	16.1	19.9	19.7	19.6	20.2	17.9
17	1011.7	5	7	7	6	1 15	18.6	21.2	16.8	16.0	17.9	21.4	20.8	20.2	20.2	18.0
18	1013.2	6	8	7	6	0 40	17.6	21.7	13.5	12.2	14.2	19.7	19.9	19.5	19.8	18.2
19	1014.6	2	5	6	3	4 15	15.2	20.0	12.2	7.3	12.4	17.7	17.2	17.8	18.9	18.1
20	1016.4	0	4	4	1	10 15	15.4	22.7	7.5	5.2	9.4	15.7	16.0	16.4	18.1	17.9
21	1011.1	1	1	0	0	10 15	16.7	26.1	8.3	6.0	9.7	15.8	16.1	16.0	17.8	17.6
22	1010.0	0	3	6	6	4 0	18.4	23.7	11.9	9.5	12.5	17.3	17.4	17.5	18.2	17.6
23	1011.4	6	7	7	4	2 5	17.8	22.9	14.5	12.0	15.5	18.9	18.4	17.9	18.3	17.5
24	1008.2	7	7	7	7	2 40	19.6	22.6	16.8	14.0	17.5	19.7	19.0	18.4	18.4	17.5
25	1008.6	7	7	7	7	1 50	16.7	20.1	15.2	14.5	16.2	19.2	18.6	18.1	18.6	17.5
26	1016.2	7	7	5	2	2 40	16.2	20.7	10.3	14.3	11.5	17.2	17.4	17.4	18.2	17.4
27	1016.4	1	5	6	6	5 10	13.9	19.6	8.7	7.8	10.5	15.9	16.0	16.0	17.5	17.2
28	1011.0	5	7	3	5	4 0	16.0	22.2	11.9	9.6	12.5	16.8	16.5	16.3	17.3	17.1
29	1008.7	4	5	5	5	5 0	17.7	22.2	14.2	12.6	12.7	17.2	16.8	16.4	17.3	16.9
30	1010.1	7	1	2	4	9 25	17.1	21.7	12.8	12.3	14.8	17.9	17.6	17.1	17.6	16.9
M	1014.7					165 35	17.9	23.1	13.1							

Bewolking : 9 = bovenlucht niet zichtbaar / = Ontbrekend gegeven

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. SEPTEMBER 2006

	REL.VOCHT. %		MIST DUUR IN MINUTEN			NEERSLAG					DAG MET			WIND SNELHEID (km/h) en RICHTING					
	GEM.	MIN.	<1000m	<500m	<200m	l/m2	DUUR h min	%	* (cm) 6h	* (cm) 18	*	▲	R	GEM.	MAX.		0h	6h	12h	18h
1	79	58	-	-	-	0.1	0 35	2	-	-	-	-	-	11	36	SSW	SSW	SSW	SSW	S
2	78	67	-	-	-	<0.1	0 5	0	-	-	-	-	-	14	47	SW	WSW	WSW	SW	S
3	84	73	-	-	-	1.7	1 22	6	-	-	-	-	-	29	65	WSW	SW	SSW	WSW	WSW
4	80	62	-	-	-	<0.1	0 36	3	-	-	-	-	-	14	32	W	WSW	WSW	W	WNW
5	84	66	-	-	-	-	-	-	-	-	-	-	-	7	22	SW	SSW	SW	SW	N
6	82	62	-	-	-	-	-	-	-	-	-	-	-	4	22	SW	-	-	WSW	SSW
7	79	57	-	-	-	0.1	0 28	2	-	-	-	-	-	14	47	N	-	NW	NNW	NNW
8	72	54	-	-	-	-	-	-	-	-	-	-	-	11	29	ENE	N	-	ENE	ENE
9	72	52	-	-	-	-	-	-	-	-	-	-	-	14	36	E	E	E	E	E
10	78	55	-	-	-	-	-	-	-	-	-	-	-	7	18	ESE	E	E	ESE	E
11	83	58	-	-	-	-	-	-	-	-	-	-	-	4	14	SSE	-	-	ESE	E
12	81	49	-	-	-	-	-	-	-	-	-	-	-	7	22	SE	E	ESE	SE	SE
13	80	56	-	-	-	-	-	-	-	-	-	-	-	7	22	SSW	E	ESE	SW	ESE
14	81	58	-	-	-	0.2	2 8	9	-	-	-	-	-	11	29	ESE	ESE	ESE	ESE	E
15	68	47	-	-	-	-	-	-	-	-	-	-	-	11	29	ENE	NNE	NE	ENE	NE
16	76	60	-	-	-	-	-	-	-	-	-	-	-	4	18	WNW	NE	-	VR	N
17	84	69	-	-	-	-	-	-	-	-	-	-	-	14	32	WNW	WNW	W	WNW	NW
18	81	72	-	-	-	0.1	0 24	2	-	-	-	-	-	11	32	W	W	WSW	WSW	W
19	79	54	-	-	-	1.5	2 30	10	-	-	-	-	-	14	36	WSW	SW	SSW	WSW	W
20	75	51	-	-	-	-	-	-	-	-	-	-	-	11	32	SSW	SW	-	SSW	S
21	81	56	-	-	-	-	-	-	-	-	-	-	-	11	32	SE	ESE	ESE	SSE	ESE
22	77	57	-	-	-	0.2	1 12	5	-	-	-	-	-	11	40	SW	ESE	ESE	SSE	SSE
23	90	76	-	-	-	1.7	5 13	22	-	-	-	-	-	7	18	E	SSE	E	ENE	E
24	83	69	-	-	-	0.8	4 43	20	-	-	-	-	-	7	25	SSE	ESE	SE	SSE	SSE
25	92	78	-	-	-	0.6	2 43	11	-	-	-	-	-	11	43	SSW	ENE	ESE	SSW	SSW
26	89	71	-	-	-	3.5	1 27	6	-	-	-	-	-	11	36	SW	SW	WSW	W	WNW
27	89	70	220	180	49	-	-	-	-	-	-	-	-	7	22	SSW	-	ESE	SSW	SSW
28	83	60	-	-	-	-	-	-	-	-	-	-	-	7	29	SSW	SSE	SSE	SW	ESE
29	82	68	-	-	-	0.1	0 22	2	-	-	-	-	-	14	36	SSW	SSE	SSE	SSW	SSE
30	78	52	-	-	-	-	-	-	-	-	-	-	-	11	40	SSW	SSW	SW	SSW	ESE
M	81		220	180	49	10.6	23 48				-	-	-	11						

* = Sneeuw ▲ = Hagel R = Onweer

<0.1 = Neerslag te wijten aan mist of dauw

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. OKTOBER 2006

	DRUK hPa	BEWOLKING Octas				ZON DUUR	TEMPERATUREN °C LUCHT			GRAS	MINIMUM ONDER NAAKTE GROND					
	GEM.	0h	6	12	18	h min	GEM.	MAX.	MIN.	MIN.	-2cm	-5cm	-10cm	-20cm	-50cm	-100cm
1	1008.2	5	6	6	6	3 30	16.9	20.7	14.3	12.7	14.5	16.0	17.5	17.1	17.7	16.9
2	1005.9	3	7	7	6	1 20	16.0	19.0	13.9	12.7	14.2	15.2	16.6	16.4	17.3	16.9
3	1002.6	6	8	6	7	1 25	14.2	17.0	12.4	11.5	12.6	14.1	15.8	15.6	16.9	16.6
4	1010.6	4	5	5	5	2 50	13.0	16.0	10.9	8.5	12.3	13.4	15.3	15.1	16.4	16.4
5	1015.6	6	1	7	8	4 15	13.1	16.6	9.1	7.8	10.1	12.6	14.3	14.2	15.8	16.1
6	1008.3	8	8	7	8	-	15.2	17.3	14.1	12.3	14.3	14.7	15.7	15.0	15.9	16.0
7	1014.2	5	7	4	1	5 55	13.4	16.2	10.0	8.0	10.3	12.7	14.5	14.5	15.8	15.8
8	1020.9	0	4	6	5	8 10	11.7	17.6	7.1	4.0	7.7	12.9	13.5	13.5	15.1	15.6
9	1018.5	3	4	6	7	3 30	13.5	19.9	5.5	3.8	7.7	10.9	12.9	12.9	14.8	15.3
10	1019.9	4	7	5	4	2 0	15.6	19.2	12.4	12.8	12.5	14.3	15.9	15.0	15.3	15.3
11	1012.7	0	3	5	6	6 45	15.7	22.1	9.3	7.6	10.6	12.7	14.5	14.3	15.5	15.3
12	1021.2	7	5	6	7	0 10	15.0	18.7	8.6	6.6	10.3	13.7	15.6	15.3	15.8	15.3
13	**1030.6**	1	1	4	6	8 50	12.7	17.7	5.6	4.1	7.9	11.6	13.6	13.5	15.3	15.3
14	1029.1	6	8	8	2	0 45	13.5	17.0	8.9	9.8	10.0	12.4	14.5	14.5	15.4	15.2
15	1027.2	0	3	0	0	8 15	11.4	16.8	8.2	5.5	9.1	11.6	13.5	13.2	14.9	15.0
16	1021.9	0	0	0	0	**9 10**	**10.7**	17.8	5.2	2.4	7.0	10.3	12.4	12.4	14.3	14.8
17	1013.9	0	1	6	7	6 55	10.8	18.5	**4.0**	**1.4**	5.6	9.3	11.4	11.6	13.7	14.5
18	1006.8	7	7	7	7	0 15	13.6	16.7	10.6	7.9	12.5	13.2	13.5	13.0	13.9	14.3
19	998.0	7	6	7	6	1 30	14.7	19.0	10.2	8.7	12.0	13.0	14.3	13.6	14.2	14.2
20	996.4	8	5	7	7	2 15	14.9	17.0	13.3	11.0	12.8	13.5	14.5	13.8	14.5	14.3
21	1000.6	7	7	7	5	2 15	15.1	17.0	13.7	11.6	12.9	13.5	14.8	14.0	14.6	14.3
22	1000.4	1	3	7	7	0 15	15.1	18.3	11.6	9.8	11.6	12.7	14.2	13.7	14.6	14.3
23	**994.1**	8	8	7	7	1 50	16.5	19.1	12.0	14.5	12.5	13.4	15.8	14.8	14.7	14.4
24	996.4	3	7	8	6	0 10	13.0	14.5	10.1	8.3	10.3	12.4	14.0	13.8	14.8	14.4
25	1008.0	2	6	6	7	1 10	11.5	15.2	6.0	5.3	8.5	10.4	12.9	12.6	14.2	14.3
26	1005.6	4	4	3	7	5 0	**18.5**	**22.4**	14.4	12.2	13.5	14.0	14.2	13.6	14.2	14.2
27	1021.5	6	1	3	7	6 35	13.6	16.1	10.5	8.5	10.3	13.0	15.1	14.0	14.3	14.2
28	1023.2	7	7	8	8	-	14.7	17.3	12.1	10.6	12.8	13.3	14.4	13.7	14.4	14.2
29	1022.5	8	7	5	3	3 20	14.2	16.2	7.5	4.1	8.4	11.7	13.5	13.6	14.6	14.2
30	1020.8	5	5	4	4	6 5	11.2	15.8	6.0	4.1	8.4	11.4	12.2	12.7	14.1	14.1
31	1008.6	4	8	6	6	1 35	12.1	15.7	9.5	7.1	8.6	11.4	12.7	12.6	13.8	14.0
M	1012.4					106 0	13.9	17.7	9.9							

Bewolking : 9 = bovenlucht niet zichtbaar / = Ontbrekend gegeven

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. OKTOBER 2006

	REL.VOCHT.		MIST			NEERSLAG					DAG MET			WIND						
	%		DUUR IN MINUTEN				DUUR		* (cm)					SNELHEID (km/h) en RICHTING						
	GEM.	MIN.	<1000m	<500m	<200m	l/m2	h min	%	6h	18	*	▲	℞	GEM.	MAX.		0h	6h	12h	18h
1	84	64	-	-	-	6.0	1 45	7	-	-	-	-	X	14	47	SSW	S	SSW	SSW	S
2	79	67	-	-	-	1.6	1 34	7	-	-	-	-	-	25	54	SW	SSW	SSW	SW	SSW
3	84	67	-	-	-	1.2	1 43	7	-	-	-	-	-	14	32	SW	SSW	SSW	W	W
4	84	68	-	-	-	8.2	3 34	15	-	-	-	-	-	14	29	W	WSW	WSW	W	W
5	85	70	-	-	-	3.9	6 19	26	-	-	-	-	-	18	54	SW	SSW	SW	SSW	SSW
6	89	83	-	-	-	8.9	7 34	32	-	-	-	-	-	22	54	SSW	SW	SSW	SSW	SSW
7	80	65	-	-	-	2.0	1 53	8	-	-	-	-	-	18	50	WNW	SW	W	W	WSW
8	83	60	-	-	-	-	-	-	-	-	-	-	-	11	25	SSW	SW	SSW	SSW	ESE
9	86	66	-	-	-	-	-	-	-	-	-	-	-	7	29	WSW	ESE	ESE	SSW	SW
10	95	80	-	-	-	2.6	3 46	16	-	-	-	-	-	7	22	ESE	SE	VR	ESE	ENE
11	87	64	-	-	-	-	-	-	-	-	-	-	-	11	25	ESE	ESE	ESE	SE	SSE
12	92	84	-	-	-	<0.1	0 43	3	-	-	-	-	-	7	29	W	SE	S	W	NW
13	87	62	-	-	-	-	-	-	-	-	-	-	-	4	18	ENE	-	-	NE	ENE
14	92	74	-	-	-	-	-	-	-	-	-	-	-	11	25	E	NE	ENE	ENE	NE
15	89	72	-	-	-	-	-	-	-	-	-	-	-	11	29	ENE	ENE	E	NE	ENE
16	88	66	-	-	-	-	-	-	-	-	-	-	-	11	25	ESE	E	E	ESE	E
17	86	61	-	-	-	-	-	-	-	-	-	-	-	11	25	SSE	E	E	SE	SSE
18	92	85	-	-	-	5.1	3 21	14	-	-	-	-	-	7	18	SE	SSE	SSW	ESE	ESE
19	87	74	-	-	-	0.1	1 0	4	-	-	-	-	-	11	36	SSW	E	ESE	S	SSE
20	84	71	-	-	-	0.3	0 30	2	-	-	-	-	-	18	43	S	S	SSW	S	SSW
21	86	76	-	-	-	0.8	0 33	2	-	-	-	-	X	18	43	SSW	SSW	SSW	SSW	S
22	86	72	-	-	-	9.1	5 2	21	-	-	-	-	-	18	40	SSW	SSW	SSW	SSW	SSE
23	87	75	-	-	-	5.3	2 14	9	-	-	-	-	-	18	54	WSW	SSW	SSW	SW	SE
24	91	81	-	-	-	7.8	4 40	19	-	-	-	-	-	18	58	SW	SSE	S	SW	WSW
25	90	77	-	-	-	0.6	0 36	3	-	-	-	-	-	11	29	ESE	SW	E	ESE	ESE
26	77	67	-	-	-	-	-	-	-	-	-	-	-	18	43	SW	SSE	S	SSW	SW
27	76	60	-	-	-	0.3	1 8	5	-	-	-	-	-	14	32	WSW	WSW	WSW	WSW	W
28	88	75	-	-	-	<0.1	1 3	4	-	-	-	-	-	14	40	WSW	SSW	SW	SW	WSW
29	85	71	-	-	-	-	-	-	-	-	-	-	-	14	43	NNW	WSW	W	NNW	NNW
30	85	66	22	-	-	-	-	-	-	-	-	-	-	11	29	SSW	VR	ESE	SSW	SW
31	82	66	-	-	-	1.0	1 56	8	-	-	-	-	-	22	54	NW	SW	SSW	WSW	WSW
M	86		22	-	-	64.8	50 54				-	-	2	14						

* = Sneeuw ▲ = Hagel ℞ = Onweer

<0.1 = Neerslag te wijten aan mist of dauw

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. NOVEMBER 2006

	DRUK hPa	BEWOLKING Octas				ZON DUUR	TEMPERATUREN °C LUCHT			GRAS	MINIMUM ONDER NAAKTE GROND					
	GEM.	0h	6	12	18	h min	GEM.	MAX.	MIN.	MIN.	-2cm	-5cm	-10cm	-20cm	-50cm	-100cm
1	1021.8	1	1	3	3	4 10	8.1	11.4	3.7	0.6	2.7	8.3	10.2	10.5	12.8	13.7
2	1030.5	1	1	5	2	2 45	5.9	9.2	3.7	-0.3	3.1	7.9	9.7	9.7	11.9	13.3
3	1031.6	7	1	5	5	2 35	6.9	11.3	1.2	-1.2	4.0	7.0	8.5	9.0	11.4	12.8
4	**1033.0**	7	4	4	5	4 40	8.3	11.0	6.2	3.8	4.9	7.8	9.5	9.3	11.2	12.5
5	1029.8	5	5	6	7	1 5	9.4	12.5	6.7	5.4	6.4	8.2	9.6	9.3	11.0	12.2
6	1028.4	6	7	7	7	-	9.3	10.8	8.2	6.2	7.4	9.6	10.8	10.0	11.2	12.1
7	1023.0	6	8	4	4	4 0	6.4	8.4	1.8	3.2	3.4	7.4	9.2	9.4	11.3	12.0
8	1020.5	2	8	8	8	1 40	8.2	12.6	4.5	0.1	4.6	8.2	9.2	9.0	10.7	11.8
9	1028.9	8	1	4	3	**7 20**	10.0	12.2	5.0	2.6	4.2	8.2	10.0	10.0	10.8	11.7
10	**1033.0**	0	4	6	8	2 35	6.2	10.7	**0.5**	-0.6	3.2	6.9	8.6	8.7	10.6	11.6
11	1017.2	6	8	4	8	2 10	9.0	11.9	6.2	5.0	7.5	8.0	9.1	8.7	10.3	11.3
12	1017.7	6	6	8	6	2 25	9.0	10.3	7.2	5.3	6.7	8.2	9.3	9.0	10.3	11.2
13	1009.8	8	8	7	7	-	11.3	14.1	8.2	7.8	8.5	8.6	9.6	9.0	10.3	11.1
14	1010.1	5	6	8	8	-	12.8	13.5	11.6	9.6	10.0	10.1	11.3	10.5	10.6	11.1
15	1009.5	5	8	6	4	0 40	12.8	15.9	8.2	5.0	8.6	10.0	11.5	11.1	11.3	11.2
16	1001.8	1	2	8	7	0 5	14.3	17.3	10.2	5.0	10.4	10.9	11.2	10.7	11.3	11.3
17	1006.1	7	7	2	2	5 35	11.5	14.1	9.8	9.0	10.1	8.9	11.9	10.8	11.6	11.4
18	1014.2	7	7	7	3	2 55	8.9	12.1	2.6	0.2	6.5	8.9	10.4	10.2	11.4	11.5
19	1018.4	3	7	8	0	0 20	5.7	8.6	2.6	0.2	6.4	7.3	8.8	8.8	10.5	11.3
20	1009.2	0	7	8	8	-	7.9	9.9	5.3	4.2	6.3	7.2	8.5	8.2	10.0	10.9
21	997.6	8	1	4	2	4 10	8.0	10.2	4.6	2.7	4.4	6.9	8.4	8.3	10.0	10.7
22	998.2	5	5	5	7	2 55	6.8	9.8	4.3	2.6	5.7	6.8	8.8	7.8	9.5	10.5
23	**990.4**	8	8	8	5	-	10.7	14.5	8.4	6.6	8.5	8.3	9.2	8.5	9.5	10.2
24	997.9	2	4	6	7	0 5	10.3	13.3	8.0	6.2	7.4	8.1	9.3	8.9	9.9	10.3
25	999.1	8	8	8	6	0 5	**14.5**	**18.4**	11.0	10.8	9.7	10.0	11.0	9.9	10.0	10.3
26	1016.9	7	7	4	2	2 35	10.7	13.9	5.0	2.3	5.0	8.2	9.9	9.7	10.6	10.5
27	1018.5	0	3	3	7	4 50	10.4	16.0	3.4	0.9	5.2	7.4	8.8	8.6	10.1	10.5
28	1017.1	2	0	5	6	1 25	10.6	15.2	4.8	1.8	5.4	8.8	9.5	9.1	10.1	10.5
29	1029.7	3	2	1	0	6 40	9.0	12.1	6.5	4.9	7.4	8.8	9.3	9.0	10.2	10.4
30	1032.8	8	8	7	6	1 25	5.2	7.6	3.2	1.7	4.7	6.4	8.6	8.2	9.6	10.3
M	1016.4					69 10	9.3	12.3	5.8							

Bewolking : 9 = bovenlucht niet zichtbaar / = Ontbrekend gegeven

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. NOVEMBER 2006

	REL.VOCHT. %		MIST DUUR IN MINUTEN			NEERSLAG					DAG MET			WIND SNELHEID (km/h) en RICHTING						
							DUUR		* (cm)										
	GEM.	MIN.	<1000m	<500m	<200m	l/m2	h min	%	6h	18	*	▲	R	GEM.	MAX.		0h	6h	12h	18h
1	71	52	-	-	-	2.8	1 58	8	-	-	-	-	-	18	72	NW	WNW	NW	NNW	NW
2	87	76	-	-	-	2.9	1 43	7	-	-	-	-	-	11	22	WNW	W	SW	W	W
3	90	66	-	-	-	1.7	1 58	8	-	-	-	-	-	7	22	SSW	W	-	WSW	W
4	86	67	-	-	-	-	-	-	-	-	-	-	-	11	32	W	W	W	WNW	W
5	88	78	-	-	-	-	-	-	-	-	-	-	-	14	40	WSW	WSW	SW	W	WSW
6	89	82	-	-	-	-	-	-	-	-	-	-	-	11	29	SW	WSW	WSW	SW	SW
7	90	79	-	-	-	-	-	-	-	-	-	-	-	7	18	SSW	SW	SW	SE	-
8	92	84	-	-	-	0.5	1 44	7	-	-	-	-	-	18	36	SSW	SW	SW	SW	SW
9	82	65	-	-	-	2.6	2 14	9	-	-	-	-	-	14	40	WNW	WSW	W	WNW	WNW
10	83	66	-	-	-	-	-	-	-	-	-	-	-	7	25	S	WSW	-	SSW	S
11	81	67	-	-	-	14.1	7 57	33	-	-	-	-	-	22	50	W	SSW	SW	WNW	W
12	73	61	-	-	-	-	-	-	-	-	-	-	-	22	58	W	W	WNW	WNW	W
13	90	81	-	-	-	3.6	8 10	34	-	-	-	-	-	22	47	SW	SW	SW	WSW	W
14	89	82	-	-	-	4.1	4 54	20	-	-	-	-	-	18	40	SW	WSW	WSW	W	SSW
15	86	75	-	-	-	0.4	0 35	2	-	-	-	-	-	14	29	SW	SW	SSW	SSW	SSE
16	78	64	-	-	-	2.9	5 50	24	-	-	-	-	-	18	50	S	S	SSE	S	S
17	79	61	-	-	-	-	-	-	-	-	-	-	-	18	47	S	W	S	SSW	S
18	82	65	-	-	-	3.5	3 28	14	-	-	-	-	-	14	47	SSW	S	WSW	SW	SSW
19	92	79	-	-	-	7.0	7 30	31	-	-	-	-	-	7	29	SSW	ESE	NNE	NNW	SSW
20	88	73	-	-	-	9.5	14 50	62	-	-	-	-	-	25	50	SSW	SSW	SSW	SSW	SSW
21	84	64	-	-	-	2.4	3 57	16	-	-	-	X	-	18	40	SW	SSW	WSW	SW	SE
22	87	71	-	-	-	6.3	7 27	31	-	-	-	-	-	18	43	SSW	SW	SW	SW	S
23	92	86	-	-	-	10.6	13 0	54	-	-	-	-	-	22	54	SW	SSW	S	SW	SSW
24	89	86	-	-	-	1.4	2 5	9	-	-	-	-	-	14	32	SE	SSW	S	SSE	SSE
25	73	63	-	-	-	4.0	4 10	17	-	-	-	-	-	22	65	SSW	SE	S	SW	WSW
26	85	74	-	-	-	-	-	-	-	-	-	-	-	11	32	SSW	S	S	S	SSE
27	85	73	-	-	-	-	-	-	-	-	-	-	-	11	32	SSW	SSE	SE	S	S
28	88	75	-	-	-	0.9	0 43	3	-	-	-	-	-	14	40	SSW	S	ESE	S	S
29	90	76	-	-	-	-	-	-	-	-	-	-	-	11	25	SSW	WSW	SW	WSW	SSW
30	97	87	687	652	25	-	-	-	-	-	-	-	-	11	22	ESE	SW	SSE	ESE	ESE
M	86		687	652	25	81.2	94 13				-	1	-	15						

* = Sneeuw ▲ = Hagel R = Onweer

<0.1 = Neerslag te wijten aan mist of dauw

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. DECEMBER 2006

	DRUK hPa	BEWOLKING Octas				ZON DUUR	LUCHT			GRAS	TEMPERATUREN °C MINIMUM ONDER NAAKTE GROND					
	GEM.	0h	6	12	18	h min	GEM.	MAX.	MIN.	MIN.	-2cm	-5cm	-10cm	-20cm	-50cm	-100cm
1	1022.7	7	6	7	7	0 50	9.1	10.6	7.1	5.7	6.8	7.5	7.6	8.1	9.4	10.1
2	1015.0	7	7	8	8	-	10.3	11.4	8.3	6.0	7.6	8.3	8.4	8.7	9.5	10.0
3	1003.8	0	5	8	5	0 15	9.1	11.7	6.5	5.1	7.2	7.8	8.0	8.6	9.6	10.0
4	1001.1	7	8	4	5	3 20	10.2	13.4	7.3	5.7	7.3	7.9	8.0	8.4	9.5	9.9
5	999.2	8	7	6	6	-	13.2	15.3	10.8	9.7	10.1	10.0	9.9	9.5	9.6	9.9
6	1004.0	7	6	7	5	2 45	9.7	11.3	6.9	5.1	7.0	8.0	8.4	9.1	10.2	10.0
7	998.4	1	7	7	4	-	8.9	11.3	6.4	4.4	6.5	7.4	7.8	8.4	9.6	9.9
8	989.6	7	7	7	7	0 15	9.4	12.0	7.1	5.8	7.5	8.2	8.3	8.7	9.5	9.8
9	1009.5	7	1	4	1	4 0	5.9	8.7	1.5	-1.8	2.3	5.6	7.2	7.4	9.1	9.7
10	1026.7	0	2	4	3	5 30	4.2	7.5	1.2	-1.8	2.1	4.8	6.2	6.3	8.2	9.5
11	1018.4	6	7	8	8	-	6.9	8.2	5.0	4.0	5.3	5.4	5.6	6.3	8.0	8.9
12	1021.2	7	0	3	6	4 50	7.4	9.4	4.9	4.0	4.3	5.7	6.2	7.0	8.2	8.5
13	1024.6	7	7	8	7	0 10	9.6	10.8	7.8	6.7	7.4	7.4	7.4	7.4	8.2	8.8
14	1026.6	2	6	7	4	2 10	8.6	10.3	6.9	4.8	5.8	7.1	7.4	7.9	8.8	8.9
15	1024.7	6	6	7	2	2 40	6.5	8.7	4.8	4.5	4.7	5.3	6.1	6.8	8.4	8.9
16	1021.0	4	5	8	1	-	6.1	7.4	3.6	4.5	3.8	5.0	5.6	6.5	8.0	8.8
17	1026.5	1	0	3	5	3 45	4.5	7.4	2.1	-1.0	1.2	4.3	4.6	5.6	7.4	8.6
18	1030.2	0	5	9	9	-	1.4	3.0	0.1	-1.7	1.0	3.5	4.1	5.0	6.9	8.3
19	1036.8	8	8	6	5	1 30	1.3	5.0	-1.2	-1.8	2.0	3.9	4.2	4.9	6.7	8.0
20	1039.1	8	8	7	8	0 5	1.4	4.8	-1.8	-1.2	2.0	3.6	3.8	4.6	6.4	7.8
21	1041.8	8	8	7	7	-	6.0	8.1	4.3	3.9	5.2	5.2	5.2	5.2	6.5	7.6
22	1043.1	8	8	6	4	0 25	6.1	7.0	4.6	8.2	3.8	5.6	5.8	6.2	6.8	7.6
23	1041.4	8	8	8	8	-	3.7	5.1	1.8	2.2	3.2	4.6	5.2	5.7	7.0	7.7
24	1038.6	8	8	8	8	-	1.2	1.9	0.6	1.3	2.5	4.1	4.4	5.0	6.6	7.6
25	1037.1	8	8	8	8	-	3.2	5.0	0.8	0.8	2.2	4.0	4.3	4.8	6.4	7.4
26	1035.2	8	8	8	8	-	1.0	3.1	-0.9	-0.2	1.5	3.7	4.0	4.6	6.3	7.3
27	1032.4	8	7	8	8	-	0.3	1.2	-0.3	0.1	2.6	3.3	3.4	3.9	5.8	7.2
28	1027.6	8	8	8	8	-	2.5	3.4	1.2	1.1	2.8	3.3	3.4	3.9	5.7	7.0
29	1023.2	8	1	5	7	1 25	5.0	8.5	-0.9	-2.4	0.9	2.0	3.1	4.2	5.7	6.8
30	1014.6	5	8	8	8	-	9.4	12.0	8.0	6.2	4.5	4.6	4.6	4.9	5.8	6.8
31	1020.8	6	7	8	8	-	10.1	12.9	8.8	7.4	6.8	6.8	6.9	7.0	6.6	6.8
M	1022.4					33 55	6.2	8.3	4.0							

Bewolking : 9 = bovenlucht niet zichtbaar / = Ontbrekend gegeven

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. DECEMBER 2006

	REL.VOCHT.		MIST			NEERSLAG					DAG MET			WIND						
	%		DUUR IN MINUTEN				DUUR		* (cm)					SNELHEID (km/h) en RICHTING						
	GEM.	MIN.	<1000m	<500m	<200m	1/m2	h min	%	6h	18	*	▲	R	GEM.	MAX.		0h	6h	12h	18h
1	78	69	-	-	-	-	-	-	-	-	-	-	-	18	40	SSW	S	SSW	S	S
2	83	69	-	-	-	2.3	5 24	23	-	-	-	-	-	18	32	SSW	S	S	SSW	SSW
3	84	65	-	-	-	5.4	4 14	18	-	-	-	-	-	25	68	S	SSW	S	SSW	SSW
4	84	72	-	-	-	5.0	8 35	36	-	-	-	-	-	25	61	SW	SW	SW	WSW	SSW
5	81	72	-	-	-	9.6	4 58	21	-	-	-	-	-	29	68	SSW	SW	SSW	SSW	SW
6	80	67	-	-	-	0.6	0 17	1	-	-	-	-	-	25	50	SW	SW	SW	SW	SW
7	82	64	-	-	-	12.4	6 40	28	-	-	-	-	-	29	68	SSW	SSW	S	S	SW
8	87	72	-	-	-	15.5	10 41	45	-	-	-	-	-	22	61	WSW	SSW	S	S	WSW
9	90	78	-	-	-	-	-	-	-	-	-	-	-	11	25	SW	SW	SW	WSW	W
10	89	77	-	-	-	-	-	-	-	-	-	-	-	11	43	SSW	SW	SW	SW	SSW
11	91	80	-	-	-	14.7	15 11	63	-	-	-	-	-	29	61	SSW	SSW	SSW	SSW	SSW
12	86	77	-	-	-	1.0	1 42	7	-	-	-	-	-	18	47	SW	SW	SW	SSW	SSW
13	87	79	-	-	-	2.1	1 29	6	-	-	-	-	-	25	47	WSW	SW	SW	SW	SSW
14	84	79	-	-	-	-	-	-	-	-	-	-	-	22	43	SSW	SW	SSW	SW	SSW
15	80	65	-	-	-	-	-	-	-	-	-	-	-	18	43	SW	SW	WSW	SSW	SW
16	90	72	-	-	-	7.9	7 56	33	-	-	-	-	-	14	40	SSW	SSW	SSW	NNW	W
17	91	84	-	-	-	0.7	0 58	4	-	-	-	-	-	11	32	WSW	WSW	SSW	WSW	WSW
18	98	96	690	540	120	-	-	-	-	-	-	-	-	7	18	SSW	WSW	-	S	ESE
19	97	84	624	390	300	-	-	-	-	-	-	-	-	4	14	NNE	VR	VR	NNW	-
20	95	86	480	450	-	-	-	-	-	-	-	-	-	4	14	W	VR	VR	SW	WSW
21	91	83	-	-	-	<0.1	0 42	3	-	-	-	-	-	7	14	NNE	-	SE	N	NNE
22	82	76	-	-	-	-	-	-	-	-	-	-	-	7	22	ENE	NNE	NNE	ENE	NNE
23	89	83	-	-	-	-	-	-	-	-	-	-	-	11	22	ENE	ENE	ENE	ENE	E
24	97	94	210	-	-	-	-	-	-	-	-	-	-	11	22	ENE	E	ENE	E	E
25	95	91	15	-	-	-	-	-	-	-	-	-	-	11	29	ENE	ENE	E	E	E
26	96	90	-	-	-	-	-	-	-	-	-	-	-	7	25	E	E	ESE	E	ESE
27	88	84	-	-	-	<0.1	4 35	19	-	-	-	-	-	11	25	SSW	S	WSW	SW	SW
28	92	85	-	-	-	2.5	9 41	40	-	-	-	-	-	18	40	SW	SW	SW	SW	SW
29	76	58	-	-	-	-	-	-	-	-	-	-	-	11	32	SSW	SSW	SE	S	SSW
30	83	56	-	-	-	8.7	8 21	35	-	-	-	-	-	32	97	WSW	S	SSW	SSW	S
31	82	69	-	-	-	1.7	2 58	12	-	-	-	-	-	29	72	WSW	WSW	SW	SSW	SSW
M	87		2019	1380	420	90.1	94 22				-	-	-	17						

* = Sneeuw ▲ = Hagel R = Onweer

<0.1 = Neerslag te wijten aan mist of dauw

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. JANUARI 2007

	DRUK hPa	BEWOLKING Octas				ZON DUUR	TEMPERATUREN °C LUCHT			GRAS	MINIMUM ONDER NAAKTE GROND					
	GEM.	0h	6	12	18	h min	GEM.	MAX.	MIN.	MIN.	-2cm	-5cm	-10cm	-20cm	-50cm	-100cm
1	1014.2	7	5	6	2	1 40	8.3	12.9	5.6	3.7	4.3	5.7	6.0	6.6	7.3	7.0
2	1020.3	7	2	7	7	0 15	6.1	7.3	4.6	3.6	4.5	5.4	5.6	6.1	7.1	7.3
3	1025.6	5	5	8	7	-	6.9	8.8	4.7	3.0	3.9	5.2	5.5	5.9	7.0	7.3
4	1011.6	8	8	7	7	0 5	9.6	10.2	8.3	7.0	7.4	6.9	6.8	6.8	7.1	7.3
5	1018.7	7	5	7	8	-	9.1	10.7	7.8	6.3	7.2	7.1	7.2	7.3	7.5	7.3
6	1015.9	8	6	8	8	-	9.2	11.5	7.3	5.3	5.9	6.9	7.4	7.7	7.8	7.5
7	1015.4	7	5	7	5	-	8.2	9.3	7.0	5.0	6.9	7.1	7.2	7.7	8.0	7.6
8	1004.0	7	7	7	8	1 25	9.8	12.7	8.3	6.2	7.7	7.4	7.4	7.6	8.0	7.8
9	1009.7	7	7	8	7	0 10	**13.2**	14.3	11.8	10.3	9.8	8.9	8.7	8.6	8.3	7.8
10	1013.6	7	6	8	6	-	10.9	13.6	6.2	4.4	5.5	7.3	8.0	8.6	8.9	8.0
11	1012.9	1	7	8	6	-	7.9	10.9	5.8	4.3	5.5	6.9	7.2	7.5	8.5	8.2
12	1021.3	6	2	8	8	-	10.0	12.4	7.5	5.7	5.0	6.6	7.0	7.3	8.3	8.2
13	1020.8	8	8	8	8	-	10.9	11.5	9.9	9.5	9.9	9.0	8.9	8.6	8.3	8.1
14	1028.2	8	1	1	4	6 35	7.8	10.6	5.7	3.0	4.2	6.1	6.5	7.3	8.5	8.2
15	1026.6	1	6	1	4	6 25	6.0	8.7	4.3	3.0	4.0	5.4	6.0	6.4	7.8	8.2
16	1019.3	6	7	7	7	-	7.9	9.3	6.1	4.7	4.8	5.5	6.0	6.4	7.6	8.0
17	1011.5	7	7	8	2	0 10	9.9	12.1	8.2	5.6	8.0	7.2	7.3	7.3	7.8	7.9
18	**997.1**	6	8	8	1	-	11.7	**14.9**	8.7	7.5	8.0	8.2	8.1	8.1	8.2	7.9
19	1013.7	7	8	5	7	2 10	11.1	12.7	9.4	8.1	9.0	8.6	8.6	8.7	8.8	8.0
20	1013.0	7	7	8	4	-	11.0	13.6	6.9	5.4	6.4	7.3	8.0	8.5	8.9	8.2
21	1011.1	2	7	5	3	2 40	6.8	9.1	4.6	3.0	4.0	5.7	7.1	7.0	8.4	8.4
22	1017.3	1	7	6	5	1 20	3.4	6.9	-1.3	-3.7	-0.8	3.2	4.9	5.4	7.6	8.2
23	1017.2	5	5	7	3	1 35	-1.1	1.0	-2.6	-5.5	-2.2	1.3	3.1	3.3	6.2	7.7
24	1011.1	3	5	3	8	2 20	-0.7	3.6	-4.1	-5.9	-2.3	1.1	2.7	2.7	5.3	7.1
25	1024.7	8	7	7	2	2 5	-1.8	1.0	**-5.7**	-8.2	-3.9	0.9	2.5	2.5	4.9	6.7
26	1022.7	6	8	7	8	0 25	0.9	4.7	-3.1	-4.0	-1.6	0.8	2.3	2.1	4.5	6.3
27	**1028.6**	5	4	7	7	1 45	5.4	7.4	3.0	0.7	2.0	2.5	2.7	2.9	4.5	6.0
28	1026.9	7	7	7	7	-	6.1	7.7	5.2	4.3	4.9	5.1	4.4	4.5	5.0	6.0
29	1025.7	7	7	7	7	0 5	7.9	9.5	6.9	5.5	5.5	5.6	5.4	5.3	5.5	6.0
30	1026.3	8	7	8	8	-	8.0	8.8	7.3	6.7	7.3	7.4	7.0	6.5	6.3	6.2
31	1023.2	8	8	5	8	6 20	6.8	7.7	5.4	3.3	3.3	5.8	6.1	6.5	6.8	6.4
M	1017.7					37 30	7.3	9.5	5.2							

Bewolking : 9 = bovenlucht niet zichtbaar / = Ontbrekend gegeven

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. JANUARI 2007

	REL. VOCHT. %		MIST DUUR IN MINUTEN			NEERSLAG					DAG MET			WIND SNELHEID (km/h) en RICHTING						
	GEM.	MIN.	<1000m	<500m	<200m	l/m2	DUUR h min	%	* (cm) 6h	* (cm) 18	*	▲	℞	GEM.	MAX.		0h	6h	12h	18h
1	79	65	-	-	-	6.3	2 8	9	-	-	-	-	-	25	61	W	SW	WSW	W	SSW
2	86	79	-	-	-	7.8	4 55	20	-	-	-	-	-	18	50	WSW	WSW	W	WSW	W
3	88	78	-	-	-	0.1	1 57	8	-	-	-	-	-	18	50	SW	W	SW	SSW	SSW
4	80	73	-	-	-	1.0	2 48	12	-	-	-	-	-	29	50	W	SSW	SW	W	W
5	89	79	-	-	-	3.2	7 19	30	-	-	-	-	-	18	43	WSW	W	WSW	SW	SW
6	91	82	-	-	-	14.4	10 37	44	-	-	-	-	-	14	61	W	WSW	WSW	SSW	SW
7	86	80	-	-	-	0.2	2 31	10	-	-	-	-	-	22	50	WSW	WNW	SW	SSW	SSW
8	87	76	-	-	-	3.2	11 12	47	-	-	-	-	-	22	50	SW	SSW	SSW	WSW	S
9	77	66	-	-	-	0.4	1 48	8	-	-	-	-	-	29	65	WSW	WSW	WSW	SW	SSW
10	79	69	-	-	-	5.6	3 41	15	-	-	-	-	-	29	68	SW	SSW	SSW	SW	W
11	80	69	-	-	-	15.2	6 18	26	-	-	-	-	-	36	86	SW	WSW	SSW	SW	WNW
12	82	73	-	-	-	0.4	2 53	12	-	-	-	-	-	29	65	SW	W	SW	SW	WSW
13	88	75	-	-	-	0.5	9 57	41	-	-	-	-	-	22	54	WSW	WSW	SW	SW	SSW
14	77	65	-	-	-	1.5	1 9	5	-	-	-	-	-	18	61	WNW	WSW	W	W	SSW
15	78	64	-	-	-	-	-	-	-	-	-	-	-	14	32	SW	SW	SSW	SW	S
16	89	77	-	-	-	3.0	6 35	27	-	-	-	-	-	18	36	SSW	SSW	SSW	SSW	SSW
17	87	78	-	-	-	9.1	4 34	19	-	-	-	X	-	22	86	WSW	SSW	SSW	SSW	WSW
18	82	60	-	-	-	15.3	11 53	50	-	-	-	-	-	40	119	W	SW	SW	WSW	W
19	82	64	-	-	-	10.4	5 34	23	-	-	-	-	-	22	54	WSW	W	WNW	W	WSW
20	80	70	-	-	-	1.6	3 18	14	-	-	-	-	-	29	72	WSW	SW	WSW	WSW	WSW
21	78	65	-	-	-	3.1	3 14	13	-	-	-	-	-	29	83	W	SW	SW	WSW	W
22	83	66	-	-	-	-	-	-	-	-	-	-	-	14	43	NE	SW	SW	N	NE
23	76	55	-	-	-	-	-	-	-	-	-	-	-	7	22	NE	NNE	NNE	NE	NNE
24	90	73	-	-	-	<0.1	4 11	17	-	<1	X	-	-	7	25	E	NNW	-	-	-
25	85	77	-	-	-	-	-	-	-	-	-	-	-	11	32	ENE	ENE	NE	E	VR
26	83	70	-	-	-	0.9	5 32	23	-	-	X	-	-	14	43	WSW	SSW	SW	WSW	WSW
27	87	71	-	-	-	3.3	4 12	18	-	-	-	-	-	14	40	WNW	W	WNW	NNW	WNW
28	86	76	-	-	-	1.6	4 43	20	-	-	-	-	-	22	50	W	WSW	WSW	WSW	W
29	93	88	-	-	-	1.1	4 19	18	-	-	-	-	-	11	29	W	W	W	WNW	NW
30	93	86	-	-	-	<0.1	4 38	19	-	-	-	-	-	7	22	NNW	NW	WNW	W	WSW
31	87	73	-	-	-	0.5	6 15	26	-	-	-	-	-	18	43	WSW	WSW	W	W	WSW
M	84		-	-	-	109.7	138 11				2	1	-	20						

* = Sneeuw ▲ = Hagel ℞ = Onweer

<0.1 = Neerslag te wijten aan mist of dauw

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. FEBRUARI 2007

	DRUK	BEWOLKING				ZON	TEMPERATUREN °C									
	hPa	Octas				DUUR	LUCHT			GRAS	MINIMUM ONDER NAAKTE GROND					
	GEM.	0h	6	12	18	h min	GEM.	MAX.	MIN.	MIN.	-2cm	-5cm	-10cm	-20cm	-50cm	-100cm
1	1028.5	8	8	8	2	/ /	8.8	10.5	6.6	5.1	6.4	6.4	6.5	6.6	7.2	6.6
2	1032.5	9	8	8	5	/ /	7.4	10.2	5.1	2.9	4.4	5.9	6.7	7.2	7.3	6.7
3	**1037.6**	0	0	2	2	/ /	6.2	10.7	3.6	0.0	3.0	3.8	5.1	5.9	7.1	6.9
4	1031.4	0	0	7	5	/ /	3.1	8.1	-2.4	**-4.7**	0.2	2.4	3.7	4.8	6.6	6.9
5	1016.4	3	9	8	7	/ /	2.5	5.3	-1.7	-2.7	1.2	2.6	3.9	4.5	6.1	6.7
6	1007.0	7	2	5	8	/ /	2.3	6.4	-0.2	-1.1	1.7	2.3	3.6	4.4	5.9	6.5
7	1002.2	7	8	7	8	/ /	-0.5	0.8	-1.9	-2.8	3.2	3.4	3.7	4.1	5.2	5.8
8	992.4	8	8	8	5	/ /	1.3	5.7	-3.3	-2.7	1.8	2.7	3.1	3.8	5.5	6.1
9	1003.0	6	6	6	7	/ /	4.2	6.7	1.5	0.0	2.4	3.2	3.3	3.5	4.9	5.9
10	1002.1	7	7	8	7	/ /	5.4	9.0	2.0	0.0	3.2	3.5	3.8	4.1	5.2	5.8
11	996.5	8	8	7	1	/ /	8.4	10.5	7.5	5.8	5.6	5.6	5.6	5.6	5.5	5.8
12	991.1	7	8	7	7	/ /	8.4	11.2	6.9	5.8	6.1	6.1	6.2	6.3	6.3	6.0
13	1005.5	7	7	7	7	/ /	8.3	10.1	7.0	5.0	4.9	5.4	6.4	6.7	6.7	6.2
14	1003.8	7	7	8	8	/ /	6.3	7.8	5.4	5.0	6.2	6.2	6.3	6.4	6.9	6.5
15	1021.0	7	0	3	4	/ /	5.8	11.4	0.8	-2.1	1.6	3.0	4.9	5.7	6.7	6.5
16	1016.2	0	4	7	7	/ /	5.8	14.2	-0.6	-3.8	0.1	2.3	3.5	4.6	6.4	6.5
17	1011.9	6	3	7	6	/ /	6.5	14.2	0.2	-2.5	/	3.1	3.8	4.4	6.0	6.4
18	1016.6	6	8	6	7	/ /	6.5	9.1	5.1	1.8	/	3.5	4.8	5.4	6.2	6.3
19	1014.0	8	8	8	8	/ /	6.1	7.7	4.6	4.5	/	5.2	5.0	6.2	6.6	6.4
20	1010.0	8	7	7	7	/ /	8.9	**15.2**	3.1	1.1	/	5.1	6.1	6.3	6.8	6.4
21	1009.6	7	7	8	3	/ /	7.9	10.1	4.7	3.0	4.9	5.9	6.5	7.1	7.3	6.5
22	1009.6	2	3	6	7	/ /	8.0	12.3	3.3	0.3	3.7	4.7	5.9	6.4	7.2	6.7
23	1005.7	7	5	7	5	/ /	9.3	12.3	4.9	1.9	5.2	6.0	6.4	6.9	7.3	6.8
24	997.7	3	8	7	7	/ /	9.3	11.5	6.0	2.7	6.0	6.4	7.2	7.4	7.6	6.9
25	996.0	6	5	7	7	/ /	7.7	8.9	6.4	6.2	7.4	7.5	7.6	7.7	7.8	7.0
26	1009.5	7	7	7	7	/ /	7.2	8.0	5.2	3.1	5.1	6.2	6.7	7.3	7.8	7.1
27	1010.9	3	7	8	8	/ /	6.9	11.5	4.1	1.9	4.3	5.0	5.7	6.3	7.3	7.2
28	997.4	7	7	5	6	/ /	**10.3**	12.0	9.2	7.9	7.8	7.8	7.8	7.8	7.6	7.1
M	1009.9					/ /	6.4	9.7	3.3							

Bewolking : 9 = bovenlucht niet zichtbaar / = Ontbrekend gegeven

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. FEBRUARI 2007

	REL.VOCHT. %		MIST DUUR IN MINUTEN			NEERSLAG					DAG MET			WIND SNELHEID (km/h) en RICHTING						
	GEM.	MIN.	<1000m	<500m	<200m	1/m2	DUUR h min	%	* (cm) 6h	* (cm) 18	*	▲	R	GEM.	MAX.		0h	6h	12h	18h
1	97	91	85	64	-	0.4	5 37	23	-	-	-	-	-	11	25	W	W	WNW	WNW	W
2	92	82	266	238	-	-	-	-	-	-	-	-	-	11	32	WNW	WSW	SW	W	NNW
3	83	58	-	-	-	-	-	-	-	-	-	-	-	7	25	NNE	N	NNW	NNE	NNW
4	93	79	44	15	-	-	-	-	-	-	-	-	-	7	25	ESE	NNE	-	E	ENE
5	95	85	555	504	35	0.6	1 17	5	-	-	-	-	-	4	25	NW	-	SSW	WSW	N
6	88	68	36	-	-	5.1	6 24	27	-	-	X	X	-	7	32	SW	NW	W	W	WSW
7	97	90	602	195	-	-	-	-	-	-	-	-	-	4	14	S	-	-	SSW	S
8	92	81	158	58	-	5.2	8 22	35	-	-	X	X	-	18	58	SW	SSE	ESE	S	SW
9	82	69	-	-	-	0.4	1 19	5	-	-	-	-	-	14	40	WSW	WSW	WSW	W	ENE
10	92	84	-	-	-	1.1	6 48	28	-	-	-	-	-	11	36	SSW	E	E	SSE	S
11	87	76	-	-	-	10.7	6 35	27	-	-	-	-	-	18	43	WSW	SSW	SSE	SW	WSW
12	87	69	-	-	-	10.1	12 34	52	-	-	-	-	-	25	58	SSW	SSW	SSE	SW	SW
13	78	69	-	-	-	0.3	0 7	0	-	-	-	-	-	22	54	W	W	W	W	WSW
14	93	77	-	-	-	12.2	17 4	71	-	-	-	-	-	11	47	NW	S	SE	ESE	NNW
15	83	56	-	-	-	-	-	-	-	-	-	-	-	11	32	NW	NW	SW	SSW	SE
16	75	49	72	-	-	-	-	-	-	-	-	-	-	14	36	ESE	SE	ESE	SE	ESE
17	75	51	-	-	-	-	-	-	-	-	-	-	-	11	25	ESE	ESE	ESE	ESE	SSW
18	87	78	-	-	-	-	-	-	-	-	-	-	-	7	22	W	WSW	W	N	NNE
19	92	85	-	-	-	-	-	-	-	-	-	-	-	7	22	SSW	E	ESE	SE	ESE
20	83	61	-	-	-	-	-	-	-	-	-	-	-	7	22	S	SSE	SE	SSE	SSE
21	89	78	-	-	-	3.3	6 7	25	-	-	-	-	-	11	36	SW	S	S	SW	WSW
22	80	64	-	-	-	<0.1	0 45	3	-	-	-	-	-	11	36	SSW	SSW	SSE	S	SSE
23	85	66	-	-	-	0.9	0 59	4	-	-	-	-	-	14	43	S	S	S	S	S
24	86	78	-	-	-	4.8	3 37	15	-	-	-	-	-	18	47	SW	SE	SSE	SSW	SW
25	89	77	-	-	-	13.6	5 53	25	-	-	-	-	-	18	54	SW	WSW	S	SW	WSW
26	90	84	-	-	-	3.0	4 32	19	-	-	-	-	-	18	43	WNW	W	W	W	WNW
27	92	80	-	-	-	9.9	11 12	47	-	-	-	-	-	18	54	WSW	W	SW	SE	WSW
28	76	67	-	-	-	0.3	1 14	5	-	-	-	-	X	32	76	WSW	WSW	SW	WSW	WSW
M	87		1818	1074	35	81.9	100 26				2	2	1	13						

* = Sneeuw ▲ = Hagel R = Onweer

<0.1 = Neerslag te wijten aan mist of dauw

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. MAART 2007

	DRUK hPa	BEWOLKING Octas				ZON DUUR	LUCHT			GRAS	TEMPERATUREN °C MINIMUM ONDER NAAKTE GROND					
	GEM.	0h	6	12	18	h min	GEM.	MAX.	MIN.	MIN.	-2cm	-5cm	-10cm	-20cm	-50cm	-100cm
1	**992.7**	7	7	4	6	5 35	9.0	11.1	6.7	5.4	6.6	9.1	8.5	8.0	8.0	7.2
2	1005.1	6	3	4	2	8 40	7.1	10.1	3.3	1.2	5.2	8.2	7.3	6.9	7.9	7.3
3	1003.6	7	7	8	7	1 35	7.4	10.3	5.4	3.8	5.3	7.9	7.4	7.1	7.7	7.4
4	1014.7	3	1	7	8	0 30	8.3	13.2	1.5	-0.1	3.8	6.8	6.6	6.2	7.4	7.3
5	1012.7	7	7	6	3	6 15	9.5	11.2	8.4	6.6	6.7	9.1	8.4	7.8	7.7	7.3
6	1006.0	6	8	8	8	-	9.1	10.5	8.0	6.7	6.9	9.2	8.4	7.6	7.9	7.4
7	1002.6	8	8	4	7	3 5	8.7	11.1	6.4	5.0	6.0	9.1	8.7	8.0	8.1	7.4
8	1020.8	4	2	5	1	8 40	7.6	12.3	2.6	0.7	4.8	7.9	7.3	7.0	8.0	7.5
9	1026.7	2	5	8	1	1 5	7.0	8.6	5.0	1.2	4.7	7.5	7.2	7.0	8.0	7.5
10	**1036.5**	2	0	2	6	6 10	8.0	12.9	3.2	-1.4	3.0	6.1	5.9	5.9	7.6	7.4
11	1033.7	0	0	3	1	6 50	8.9	15.3	3.7	0.8	4.9	7.6	7.4	6.9	7.7	7.4
12	1027.0	0	0	1	5	10 0	8.7	16.7	0.3	-1.4	3.5	6.7	6.7	6.6	7.9	7.4
13	1029.0	1	1	1	5	9 0	9.5	13.2	4.8	0.3	4.8	7.8	7.6	7.4	8.2	7.6
14	1035.6	1	1	2	3	9 10	7.5	13.5	**-0.3**	-1.7	3.8	7.0	7.0	7.0	8.2	7.6
15	1030.3	2	1	2	0	9 15	7.1	13.7	-0.2	**-1.8**	3.7	6.8	6.8	6.9	8.2	7.7
16	1026.7	5	5	7	6	0 45	8.4	11.1	5.3	1.8	5.8	8.6	8.2	7.8	8.4	7.8
17	1020.7	7	8	8	7	-	10.3	13.1	8.1	7.6	7.4	9.8	8.9	8.1	8.6	7.9
18	1002.7	7	8	6	5	3 0	7.4	9.5	1.6	0.8	4.8	7.5	7.2	7.3	8.6	7.8
19	994.5	7	6	7	6	2 10	**2.9**	5.6	0.8	-1.0	2.8	6.1	5.9	5.9	7.7	7.8
20	1004.6	1	2	7	6	2 55	3.8	8.3	0.8	-1.3	2.5	5.3	5.1	5.1	7.1	7.5
21	1012.0	2	6	7	7	4 0	4.3	8.8	2.0	0.3	3.3	6.0	5.7	5.4	7.0	7.3
22	1013.9	7	8	4	6	3 55	6.2	9.5	4.5	1.0	3.5	6.7	6.1	5.6	6.9	7.1
23	1012.0	2	8	8	8	0 10	5.3	6.9	4.4	1.8	3.5	6.5	6.0	5.8	6.9	7.1
24	1013.7	7	7	8	7	-	7.1	9.8	5.4	1.5	3.6	6.7	6.0	5.6	6.8	7.0
25	1018.3	7	1	1	1	7 40	9.4	13.7	6.4	1.5	5.2	8.0	7.4	6.5	7.0	6.9
26	1019.3	1	0	0	0	**11 0**	11.2	17.2	5.8	1.5	4.7	7.6	7.1	6.7	7.6	7.0
27	1017.1	0	0	1	0	10 30	10.0	16.3	3.8	0.7	4.7	7.7	7.5	7.3	8.1	7.2
28	1014.8	0	0	0	6	9 10	11.2	**18.4**	3.0	-0.2	4.5	7.6	7.4	7.4	8.3	7.4
29	1011.9	2	7	8	7	2 55	8.8	11.0	3.7	1.9	6.7	10.0	9.7	9.1	9.0	7.6
30	1011.9	6	4	7	7	1 0	7.9	12.3	1.6	0.6	5.9	9.0	8.5	8.1	8.8	7.9
31	1018.3	7	6	4	5	6 25	**11.3**	16.1	6.5	5.0	6.6	9.6	9.1	8.5	8.9	7.9
M	1015.8					151 25	8.0	12.0	4.0							

Bewolking : 9 = bovenlucht niet zichtbaar / = Ontbrekend gegeven

DEURNE 04°28' 18'' E 51°11' 31'' N 10 m Periode 00-24 h W.T. MAART 2007

	REL.VOCHT.		MIST			NEERSLAG					DAG MET			WIND						
	%		DUUR IN MINUTEN				DUUR		* (cm)					SNELHEID (km/h) en RICHTING						
	GEM.	MIN.	<1000m	<500m	<200m	l/m2	h min	%	6h	18	*	▲	ᴿ	GEM.	MAX.		0h	6h	12h	18h
1	76	57	-	-	-	8.5	6 4	25	-	-	-	-	-	29	65	SW	WSW	W	W	W
2	73	51	-	-	-	3.8	1 50	8	-	-	-	-	-	18	54	W	W	W	W	SSE
3	85	70	-	-	-	7.3	7 27	31	-	-	-	-	-	25	83	WSW	ESE	WSW	WNW	W
4	84	65	-	-	-	-	-	-	-	-	-	-	-	11	40	SSE	SW	VR	SE	ESE
5	74	57	-	-	-	11.3	3 6	13	-	-	-	-	-	22	61	WSW	SE	WSW	SW	SSW
6	85	70	-	-	-	18.3	18 28	77	-	-	-	-	-	25	65	SSW	SSW	S	SSW	S
7	87	67	-	-	-	2.1	2 15	9	-	-	-	-	-	18	43	WSW	S	SSW	WSW	W
8	84	63	-	-	-	-	-	-	-	-	-	-	-	11	29	WNW	W	SW	WNW	W
9	86	69	-	-	-	6.8	5 7	21	-	-	-	-	-	14	54	NW	SW	SW	SW	NNW
10	79	59	-	-	-	-	-	-	-	-	-	-	-	11	40	W	W	WSW	SW	W
11	85	63	-	-	-	-	-	-	-	-	-	-	-	7	25	WSW	SW	S	SSW	SSW
12	77	48	-	-	-	-	-	-	-	-	-	-	-	4	14	SE	SE	E	SE	W
13	78	60	-	-	-	-	-	-	-	-	-	-	-	11	25	NNW	N	W	W	NNW
14	75	53	-	-	-	-	-	-	-	-	-	-	-	4	18	NNE	N	-	VR	NNE
15	79	57	-	-	-	-	-	-	-	-	-	-	-	4	18	NNW	-	-	VR	NNW
16	85	77	-	-	-	<0.1	0 14	1	-	-	-	-	-	11	32	WSW	WNW	SSW	WSW	WSW
17	80	75	-	-	-	-	-	-	-	-	-	-	-	22	50	WSW	WSW	WSW	WNW	WSW
18	78	51	-	-	-	6.8	8 59	37	-	-	X	-	X	32	76	WNW	SW	SW	WNW	W
19	84	68	-	-	-	4.5	3 0	13	-	-	X	-	-	14	43	WSW	NNW	WSW	W	NNW
20	87	72	-	-	-	2.3	2 55	12	-	-	X	X	-	11	61	N	WSW	W	N	N
21	84	65	-	-	-	3.7	4 1	17	-	-	-	X	-	11	58	NNE	NW	N	NNW	NNW
22	72	60	-	-	-	-	-	-	-	-	-	-	-	18	50	NNW	NW	NNW	NNW	NNW
23	79	74	-	-	-	0.7	3 3	13	-	-	-	X	-	14	47	NE	NNW	NNW	NNE	NE
24	86	74	-	-	-	0.1	2 27	10	-	-	-	-	-	11	29	N	N	N	NNE	NE
25	69	54	-	-	-	-	-	-	-	-	-	-	-	18	40	E	NE	E	E	E
26	65	47	-	-	-	-	-	-	-	-	-	-	-	18	43	ESE	ENE	ENE	ESE	E
27	67	45	-	-	-	-	-	-	-	-	-	-	-	14	36	E	E	E	E	E
28	67	47	-	-	-	0.1	0 7	0	-	-	-	-	-	7	25	ESE	E	ESE	SE	WSW
29	84	74	30	-	-	1.6	1 41	7	-	-	-	-	-	7	25	SW	WSW	S	SW	SW
30	88	73	146	33	-	<0.1	1 16	5	-	-	-	-	-	7	18	ENE	-	-	ENE	NNE
31	69	58	-	-	-	-	-	-	-	-	-	-	-	14	40	NE	NE	NE	NE	NE
M	79		176	33	-	77.9	72 0				3	3	1	14						

* = Sneeuw ▲ = Hagel ᴿ = Onweer

<0.1 = Neerslag te wijten aan mist of dauw

APPENDIX H.

OVERVIEW OF MAINTENANCE -DREDGING ACTIVITIES

01/01/2007 – 01/04/2007

Dredging and dumping volumes [10^3 m^3]

Dredging locations									
	Week 1	*Week 2*	*Week 3*	*Week 4*	*Week 5*	*Week 6*	*Week 7*	*Week 8*	*Week 9*
Drempel van Borssele	-	-	-	-	-	-	-	-	-
Pas van Terneuzen	-	-	-	46.13	-	-	-	-	-
Put van Terneuzen	-	-	-	-	-	-	46.90	200.33	-
Gat van Ossensisse	-	106.55	91.06	91.14	-	33.94	84.75	-	-
Drempel van Walsoorden	-	-	-	-	-	-	-	-	-
Overloop Hansweert	-	-	-	12.68	77.77	59.45	-	-	-
Drempel van Hansweert	-	-	-	-	97.94	-	-	-	132.74
Overloop van Valkenisse (B 56-62)	-	-	19.14	64.98	57.60	39.04	-	-	-
Drempel van Valkenisse	-	108.40	90.42	-	-	19.79	-	-	-
Drempel van Bath	-	-	-	-	-	-	-	-	-
Nauw van Bath (B 75)	-	-	-	-	-	-	-	-	-
Vaarwater Bath (B72-76)	-	-	-	-	-	-	-	-	-
Noordzeeterminal	-	-	-	-	-	-	-	-	-
Containerkaai noord	-	-	-	-	-	-	-	-	-
Containerkaai zuid	-	-	-	-	-	-	-	-	-
Vaarwater Oudendijk	-	-	-	-	-	-	-	-	-
Drempel van Zandvliet	-	-	-	-	-	12.69	35.82	47.44	-
Zandvliet+Berendrecht sluis	-	-	67.21	74.73	69.15	48.65	-	-	-
Drempel van Frederik	-	51.65	-	-	-	1.53	-	-	-
Drempel van Lillo	-	-	57.04	53.06	52.03	19.73	-	-	-
Lillo vaarwater plaat	-	-	-	-	-	-	-	-	-
Toeg Boud+Calew sluis	-	-	-	-	-	-	-	-	-
Deurganckdok	-	-	-	-	-	-	-	73.11	-
De Parel	-	-	-	-	-	-	-	-	66.29
Ketelplaat	-	-	-	-	-	-	98.60	3.68	-
Kallo sluis	-	-	-	-	-	-	-	-	-
Krankeloon	-	-	-	-	-	-	-	-	-
Kaaien 23-27	-	-	-	-	-	-	-	-	-
Dumping locations									
	Week 1	*Week 2*	*Week 3*	*Week 4*	*Week 5*	*Week 6*	*Week 7*	*Week 8*	*Week 9*
Spijkerplaat	-	-	-	-	-	-	-	-	-
Everingen	-	62.77	55.19	66.49	-	-	-	-	-
Ellewoutsdijk	-	152.17	139.27	148.44	163.30	105.02	74.05	200.33	40.02
Biezelingse Ham	-	-	6.15	-	70.01	47.20	57.60	-	-
Schaar van Waarde	-	-	-	-	-	-	-	-	92.73
Schaar Ouden Doel	-	51.65	57.04	53.06	52.03	2.70	0.61	9.81	15.32
Opspuitingen Deurganckdok	-	-	-	-	-	-	-	-	-
Oosterweel	-	-	38.66	38.18	38.16	18.93	46.79	39.67	-
Plaat van Boomke	-	-	28.55	36.55	30.99	31.25	-	42.07	-
Punt van Melsele	-	-	-	-	-	-	51.82	-	-
Opspuitingen Kruibeke	-	-	-	-	-	29.73	35.21	32.69	50.97

Dredging locations									
	Week 10	*Week 11*	*Week 12*	*Week 13*					
Drempel van Borssele	-	-	-	-					
Pas van Terneuzen	-	29.63	-	-					
Put van Terneuzen	-	59.27	-	-					
Gat van Ossensisse	-	-	-	-					
Drempel van Walsoorden	-	-	-	-					
Overloop Hansweert	-	-	-	-					
Drempel van Hansweert	135.24	51.15	-	-					
Overloop van Valkenisse (B 56-62)	-	-	-	119.19					
Drempel van Valkenisse	-	-	-	-					
Drempel van Bath	-	99.98	122.58	-					
Nauw van Bath (B 75)	-	-	-	-					
Vaarwater Bath (B72-76)	-	-	-	-					
Noordzeeterminal	-	-	-	-					
Containerkaai noord	-	-	-	-					
Containerkaai zuid	-	-	-	-					
Vaarwater Oudendijk	-	-	78.13	-					
Drempel van Zandvliet	-	-	-	-					
Zandvliet+Berendrecht sluis	-	-	-	-					
Drempel van Frederik	74.56	-	-	-					
Drempel van Lillo	-	-	-	-					
Lillo vaarwater plaat	-	-	-	-					
Toeg Boud+Calew sluis	-	-	-	-					
Deurganckdok	-	-	-	18.13					
De Parel	22.12	-	-	-					
Ketelplaat	-	-	-	-					
Kallo sluis	-	-	-	16.67					
Krankeloon	-	-	-	-					
Kaaien 23-27	-	-	-	-					
Dumping locations									
	Week 10	*Week 11*	*Week 12*	*Week 13*					
Spijkerplaat	-	45.32	-	-					
Everingen	-	43.59	-	-					
Ellewoutsdijk	27.33	111.16	68.13	92.41					
Biezelingse Ham	-	20.25	54.45	26.78					
Schaar van Waarde	107.92	19.72	-	-					
Schaar Ouden Doel	7.51	-	78.13	-					
Opspuitingen Deurganckdok	-	-	-	-					
Oosterweel	36.19	-	-	16.25					
Plaat van Boomke	38.36	-	-	18.54					
Punt van Melsele	-	-	-	-					
Opspuitingen Kruibeke	14.62	-	-	-					

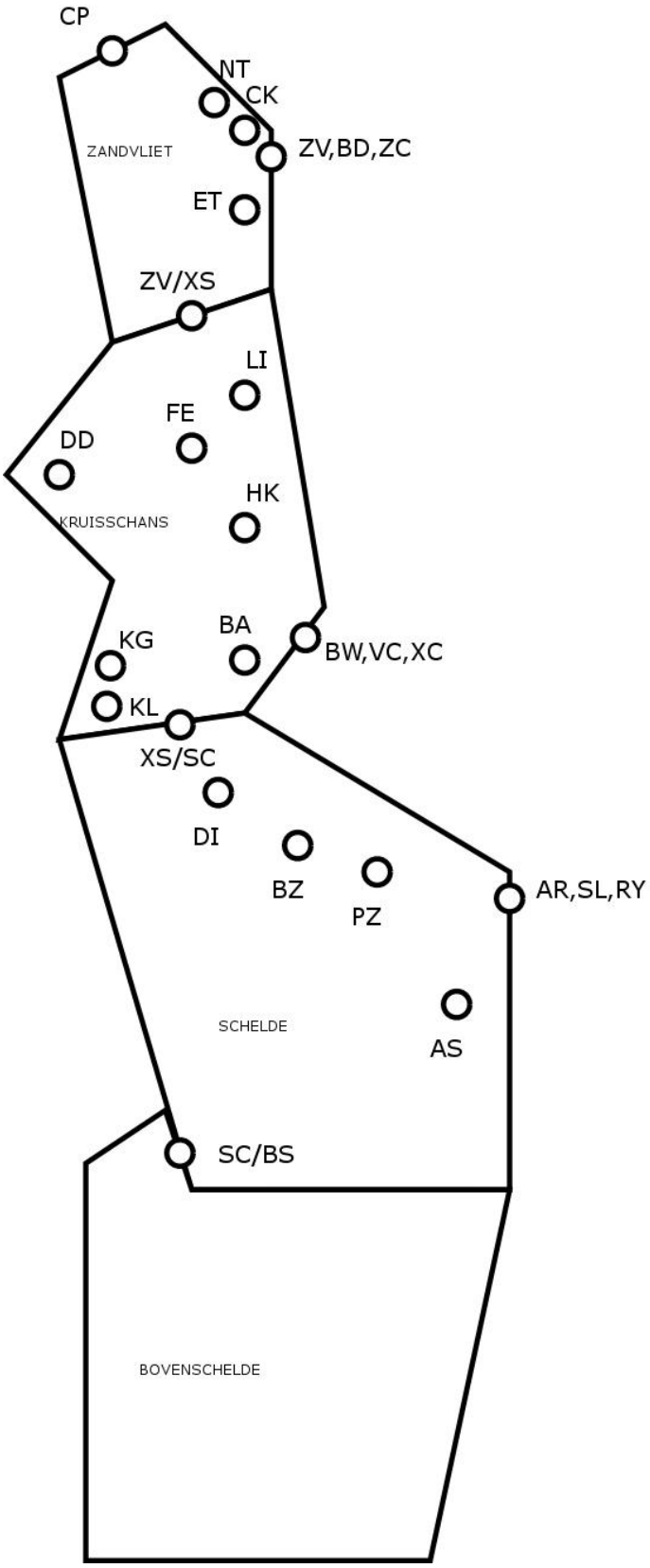
APPENDIX I.

NAVIGATION

I.1 Description of the areas

Area	Global description	Detailed description
1	Belgian border → Locks of Zandvliet – Berendrecht	Transit point CP → exit/entry point ZC, BD, ZV, NT, CK, ET or transit point ZV/XS
2	Locks of Zandvliet – Berendrecht → Deurganckdok	Transit point CP or entry/exit point ZC, BD, ZV, NT, CK, ET → transit point ZV/XS
3	Deurganckdok → Lock of Kallo	Transit point ZV/XS or entry/exit point DD → exit/entry point BA, BW, FE, HK, KG, KL, LI, VC, XC or transit point XS/SC
4	Lock of Kallo → Lock of Royers	Transit point XS/SC or entry/exit point DD, BA, BW, FE, HK, KG, KL, LI, VC, XC → entry/exit point AR, AS, BZ, DI, KT, PZ, RY, SL or transit point SC/BS

	CID	MEANING	TYPE
GA	GEBIED ANTWERPEN		
SA	Saeftinge		
	CP	Coordinatiepunt (blokgrens SA/ZV)	P
	CP2	Coordinatiepunt (blokgrens SA/ZV)	P
SC	Schelde		
	AR	Antwerpen Rede	E
	AS	Antwerpen Scheldekade/steiger	E
	AX	Antwerpen zonder detaillering	E
	BZ	BP Zwijndrecht	E
	DI	Haven Dredging International	E
	PZ	Polysar Zwijndrecht	E
	RY	Royerssluis	E
	SC/BS	Blokgrens SC/BS (boveneinde rede Antwerpen)	P
	SL	Sluizen Antwerpen Rechteroever	E
XS	Kruisschans		
	BA	Bayer Kallo	E
	BW	Boudewijnsluis	E
	DD	Deurganckdok	E
	FE	Steiger Fenol	E
	HK	Steiger Haltermann	E
	KG	Kallo geul	E
	KL	Kallosluis	E
	LI	Steiger Lillo	E
	VC	Van Cauwelaertsluis	E
	XC	Kruisschanssluiscomplex	E
	XS/SC	Blokgrens Kruisschans / Schelde	P
	XS/SC2	Blokgrens Kruisschans / Schelde	P
ZV	Zandvliet		
	BD	Berendrechtsluis	E
	CK	Containerkade Antwerpen	E
	ET	Europaterminal	E
	NT	Noordzeeterminal	E
	ZC	Zandvliet / Berendrecht sluiszencomplex	E
	ZV	Zandvliet sluis	E
	ZV/XS	Blokgrens Zandvliet / Kruisschans	P
	ZV/XS2	Blokgrens Zandvliet / Kruisschans	P



Sketch of the different areas of navigation

I.2 Weekly data

Week 1 (01/01/2007 – 07/01/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	50	40	10	6	44
	0 – 8 m	611	266	345	275	336
	8 – 12 m	203	0	203	68	135
	> 12 m	26	0	26	4	22
2	Unknown	98	87	11	40	58
	0 – 8 m	430	222	208	226	204
	8 – 12 m	66	0	66	36	30
	> 12 m	4	0	4	2	2
3	Unknown	112	101	11	25	87
	0 – 8 m	408	210	198	214	194
	8 – 12 m	42	0	42	23	19
	> 12 m	0	0	0	0	0
4	Unknown	40	35	5	29	11
	0 – 8 m	86	49	37	53	33
	8 – 12 m	1	0	1	0	1
	> 12 m	0	0	0	0	0
Week 2 (08/01/2007 – 14/01/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	91	80	11	15	75
	0 – 8 m	799	387	411	361	436
	8 – 12 m	166	0	166	49	117
	> 12 m	24	0	24	8	16
2	Unknown	151	139	12	73	77
	0 – 8 m	571	341	229	310	259
	8 – 12 m	63	0	63	34	29
	> 12 m	9	0	9	5	4
3	Unknown	142	133	9	34	107
	0 – 8 m	551	332	218	300	249
	8 – 12 m	37	0	37	22	15
	> 12 m	2	0	2	2	0
4	Unknown	63	56	7	41	21
	0 – 8 m	130	80	49	86	44
	8 – 12 m	2	0	2	1	1
	> 12 m	0	0	0	0	0

Week 3 (15/01/2007 – 21/01/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	89	77	12	6	81
	0 – 8 m	675	354	320	320	353
	8 – 12 m	213	0	213	59	154
	> 12 m	24	1	23	5	19
2	Unknown	150	139	11	47	101
	0 – 8 m	501	309	191	278	221
	8 – 12 m	67	0	67	32	35
	> 12 m	7	1	6	4	3
3	Unknown	149	140	9	22	125
	0 – 8 m	485	298	186	272	211
	8 – 12 m	48	0	48	24	24
	> 12 m	1	1	0	1	0
4	Unknown	34	31	3	21	12
	0 – 8 m	111	60	51	83	28
	8 – 12 m	0	0	0	0	0
	> 12 m	0	0	0	0	0
Week 4 (22/01/2007 – 28/01/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	110	102	8	12	98
	0 – 8 m	864	402	458	379	482
	8 – 12 m	209	1	208	64	145
	> 12 m	24	0	24	7	17
2	Unknown	156	148	8	41	115
	0 – 8 m	676	368	304	329	344
	8 – 12 m	69	1	68	40	29
	> 12 m	6	0	6	5	1
3	Unknown	178	168	10	27	150
	0 – 8 m	645	354	287	311	331
	8 – 12 m	51	1	50	32	19
	> 12 m	2	0	2	2	0
4	Unknown	45	43	2	33	12
	0 – 8 m	131	81	49	92	39
	8 – 12 m	1	0	1	0	1
	> 12 m	0	0	0	0	0

Week 5 (29/01/2007 – 04/02/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	93	84	8	11	82
	0 – 8 m	872	469	401	396	472
	8 – 12 m	197	0	197	59	138
	> 12 m	25	0	25	2	23
2	Unknown	143	133	9	46	97
	0 – 8 m	645	380	264	332	310
	8 – 12 m	64	0	64	35	29
	> 12 m	8	0	8	1	7
3	Unknown	158	147	10	29	129
	0 – 8 m	621	368	252	320	298
	8 – 12 m	42	0	42	21	21
	> 12 m	1	0	1	0	1
4	Unknown	48	42	6	34	14
	0 – 8 m	115	70	45	87	28
	8 – 12 m	1	0	1	1	0
	> 12 m	0	0	0	0	0
Week 6 (05/02/2007 – 11/02/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	112	102	10	13	97
	0 – 8 m	844	438	406	382	460
	8 – 12 m	207	0	207	57	150
	> 12 m	31	0	31	7	24
2	Unknown	164	152	12	60	102
	0 – 8 m	613	370	243	321	290
	8 – 12 m	57	0	57	33	24
	> 12 m	7	0	7	3	4
3	Unknown	174	164	10	36	136
	0 – 8 m	594	363	231	311	281
	8 – 12 m	40	0	40	23	17
	> 12 m	1	0	1	1	0
4	Unknown	45	42	3	36	9
	0 – 8 m	98	62	36	72	26
	8 – 12 m	1	0	1	1	0
	> 12 m	0	0	0	0	0

Week 7 (12/02/2007 – 18/02/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	89	86	3	14	75
	0 – 8 m	889	454	435	398	490
	8 – 12 m	182	0	182	54	128
	> 12 m	30	1	29	10	20
2	Unknown	140	137	3	41	99
	0 – 8 m	649	390	259	343	305
	8 – 12 m	59	0	59	27	32
	> 12 m	10	1	9	6	4
3	Unknown	168	165	3	23	145
	0 – 8 m	628	379	249	333	294
	8 – 12 m	41	0	41	19	22
	> 12 m	1	1	0	1	0
4	Unknown	52	50	2	31	21
	0 – 8 m	163	115	48	117	46
	8 – 12 m	1	1	0	1	0
	> 12 m	0	0	0	0	0
Week 8 (19/02/2007 – 25/02/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	83	77	6	11	71
	0 – 8 m	810	414	396	356	446
	8 – 12 m	166	0	166	53	113
	> 12 m	32	0	32	5	27
2	Unknown	133	128	5	48	84
	0 – 8 m	599	360	239	296	295
	8 – 12 m	51	0	51	28	23
	> 12 m	4	0	4	1	3
3	Unknown	128	122	6	27	100
	0 – 8 m	572	346	226	281	282
	8 – 12 m	39	0	39	22	17
	> 12 m	0	0	0	0	0
4	Unknown	33	30	3	16	16
	0 – 8 m	147	101	46	102	44
	8 – 12 m	0	0	0	0	0
	> 12 m	0	0	0	0	0

Week 9 (26/02/2007 – 04/03/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	76	68	8	11	65
	0 – 8 m	845	432	412	378	464
	8 – 12 m	189	0	189	56	133
	> 12 m	36	0	36	9	27
2	Unknown	178	170	8	84	94
	0 – 8 m	609	362	246	317	290
	8 – 12 m	61	0	61	27	34
	> 12 m	10	0	10	5	5
3	Unknown	191	183	8	54	135
	0 – 8 m	582	348	233	297	283
	8 – 12 m	48	1	47	20	28
	> 12 m	0	0	0	0	0
4	Unknown	55	52	3	44	11
	0 – 8 m	139	84	55	92	47
	8 – 12 m	0	0	0	0	0
	> 12 m	0	0	0	0	0
Week 10 (05/03/2007 – 11/03/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	94	90	4	14	79
	0 – 8 m	839	409	428	383	455
	8 – 12 m	219	0	219	72	147
	> 12 m	31	0	31	8	23
2	Unknown	168	161	7	73	94
	0 – 8 m	631	367	262	331	300
	8 – 12 m	83	0	83	40	43
	> 12 m	13	0	13	8	5
3	Unknown	170	165	5	38	131
	0 – 8 m	614	358	254	318	296
	8 – 12 m	52	0	52	25	27
	> 12 m	3	0	3	3	0
4	Unknown	42	40	2	29	13
	0 – 8 m	127	75	52	74	53
	8 – 12 m	2	0	2	1	1
	> 12 m	0	0	0	0	0

Week 11 (12/03/2007 – 18/03/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	110	103	6	7	102
	0 – 8 m	889	466	420	385	500
	8 – 12 m	209	0	209	57	152
	> 12 m	35	0	35	9	26
2	Unknown	181	171	9	64	116
	0 – 8 m	648	384	261	326	319
	8 – 12 m	79	0	79	36	43
	> 12 m	8	0	8	6	2
3	Unknown	188	178	9	30	157
	0 – 8 m	604	360	241	301	300
	8 – 12 m	52	0	52	24	28
	> 12 m	0	0	0	0	0
4	Unknown	48	45	3	29	19
	0 – 8 m	131	79	51	81	50
	8 – 12 m	2	0	2	0	2
	> 12 m	0	0	0	0	0
Week 12 (19/03/2007 – 25/03/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	87	79	6	14	72
	0 – 8 m	881	452	427	411	468
	8 – 12 m	198	0	198	66	132
	> 12 m	36	0	36	8	28
2	Unknown	147	140	5	66	80
	0 – 8 m	637	382	253	333	302
	8 – 12 m	75	0	75	39	36
	> 12 m	12	0	12	5	7
3	Unknown	138	132	4	28	109
	0 – 8 m	603	369	232	315	286
	8 – 12 m	42	0	42	22	20
	> 12 m	2	0	2	1	1
4	Unknown	31	29	1	19	12
	0 – 8 m	149	91	58	99	50
	8 – 12 m	4	0	4	2	2
	> 12 m	0	0	0	0	0

Week 13 (26/03/2007 – 01/04/2007)						
Area	*Draught*	*Total*	*Inland navigation*	*Seagoing*	*Arrival*	*Departure*
1	Unknown	124	116	8	16	107
	0 – 8 m	939	458	476	456	480
	8 – 12 m	223	0	223	79	144
	> 12 m	36	0	36	10	26
2	Unknown	199	188	11	71	127
	0 – 8 m	683	395	283	388	292
	8 – 12 m	84	0	84	47	37
	> 12 m	14	0	14	7	7
3	Unknown	215	207	8	40	172
	0 – 8 m	642	374	263	364	275
	8 – 12 m	57	0	57	33	24
	> 12 m	0	0	0	0	0
4	Unknown	67	65	2	46	21
	0 – 8 m	155	101	54	114	41
	8 – 12 m	5	0	5	4	1
	> 12 m	0	0	0	0	0